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ARMY INFORMATION DIGEST

Modern Weapons for Today's Army

General J. Lawton Collins

Writing Combat Leaflets

Naval Reserve Training

Men and Machines in Japan

Underwater Trouble Shooters

University Research for Defense

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ORGANIZING MEDICAL SERVICES
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THE ARMY INFORMATION DIGEST

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MODERN WEAPONS FOR TODAY'S ARMY

By

GENERAL J. LAWTON COLLINS

Chief of Staff, United States Army

THE Army has been assigned a role in the defense plans of our Nation that requires it to be ready at all times to move to meet aggression by the fastest means and with the greatest fire power—and by its readiness to do this, to help prevent aggression from taking place. Of course, the Army role must be correlated with the roles of the other services and must be implemented to the end that the maximum in security may be obtained within the necessary ceilings of a national defense budget.

I am happy to report that the Army is fulfilling all of these requirements. We have units that are ready to move right now in case of aggression; we have the best men in the Army today that we have ever had in peacetime and, although we have a number of critical equipment problems yet to solve, I can assure you that our troops, with the equipment that they have, would give a good account of themselves if we were attacked.

The recent reduction of our occupation commitments has enabled us to concentrate more of our efforts upon strengthening the combat units which form the hard core of our fighting force. We are giving our divisions and other combat units more officers and men, some items of better weapons and equipment, and improved training under field conditions.

Although the Army is now deployed to meet the requirements of our postwar responsibilities, it must also be prepared to assume immediately the new role that an emergency might dictate. For example, our forces in Europe must maintain a high state of readiness as a result of our decision to defend Western Europe rather than to retake it from an aggressor. Our troops in the Pacific must do likewise because of Communist expansion in that area. I have personally inspected

within the year our units in Europe and in the Far East and I was much impressed with their excellent morale and state of training.

The most important element of armies has always been men imbued with the will to win. Today the strength of nations is still measured by their ability to produce such men, although it depends more than ever before upon their ability simultaneously to provide the equipment with which men fight.

The modern soldier, like his counterparts in the Navy and Air Force, is more dependent than ever before upon the complex machines of modern war. For the combat soldier of today no longer marches into battle; instead he enters the battlefield by truck, from planes or aboard a tank. And when he performs his historic role of meeting the enemy face-to-face, he must have the tremendous mobility and fire power that modern war demands, and which intricate scientific and technical devices alone can provide. Within the Infantry division, for example, he has at his disposal more than 20,000 weapons of all types, more than 2000 radios and more than 4000 vehicles.

We have continued to get the most out of the equipment we have on hand not only by taking better care of it but also by vigorously pursuing our overhaul and rebuild program. The latter program is permitting the more effective utilization of Army stocks and is going a long way toward fulfilling our current needs in general purpose vehicles. Actually, we expect that the last of the usable general purpose vehicles will be repaired and put into service within approximately three years.

But we cannot hope to meet our full requirements from stockpiles of existing equipment which grow progressively obsolete. For as the capabilities of potential enemies grow with the development of new weapons, we must provide means of countering them.

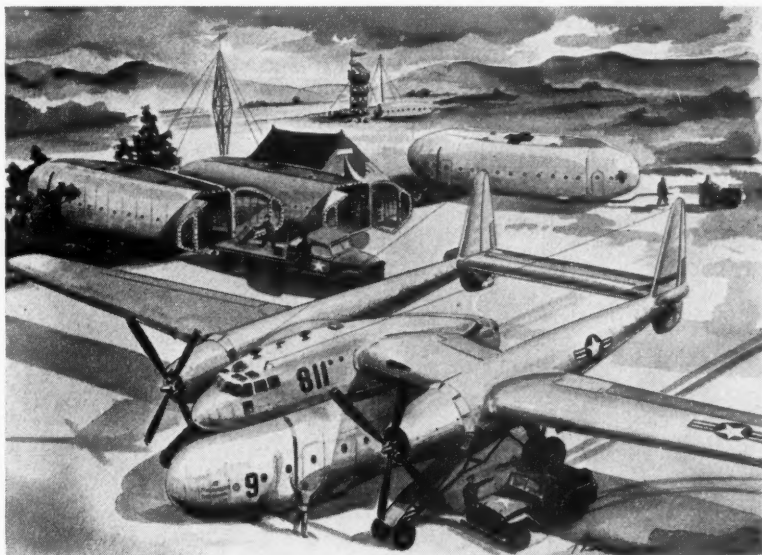
We in the Army are cooperating with industry in the simplification and standardization of common items. For we recognize that in spite of our tremendous resources and productive capability we can hope to meet the ravenous demands of war only by reducing the number of types and sizes of weapons and equipment and by simplifying their design and manufacture.

The Army is directing its efforts in this field in two principal

directions: First, we are conducting a continuing review of our needs in order to minimize our requirements; second, we are integrating our research and development activities and we have achieved an encouraging degree of standardization in military items. These and related activities will simplify the task of fulfilling the heavy demands which we must place upon industry.

We cannot, of course, afford to place the same emphasis upon peacetime military production as can the police states. We must depend instead upon producing superior equipment in limited quantities that can be mass-produced in time of emergency. This is true, for example, in the field of tanks where our need for modern equipment is most critical. At the present time the police states have amassed a total of more than 40,000 medium and heavy tanks of all types. In contrast to this, we have approximately 6000 combat-worthy tanks of light and medium varieties and, except for prototypes, we have purchased no new tanks since the end of World War II.

We have, however, undertaken a long-range tank program based upon an exhaustive analysis of our own tanks and



Department of Defense Photo

Among the new type military transport planes being developed is this detachable fuselage aircraft designed on the trailer-truck principle. This XC-120 pack-plane, capable of flying with or without its fuselage, will carry a nine-ton payload over a 2000-mile range.



Department of Defense Photo

The field pieces being dropped from these C-82s of the Ninth Air Force are 105mm howitzers. Jeeps that pull the howitzers were dropped a few seconds later from the same aircraft.

those of other nations. Under our balanced tank program, we propose the development and limited production of a family of tanks superior to those of any possible future enemy, and the establishment of modest production facilities capable of rapid expansion in the event of an emergency.

We now have what we believe is the best light tank in the world, and we are awaiting delivery of a sufficient quantity to equip our divisions and smaller units with these fine new weapons. We also have the prototype of a new medium tank which we plan to bring into limited production at an early date. To round out our concept of a family of tanks, we have designs for a heavy tank. However, we are not going to build any heavy tanks until we are sure that we cannot knock out the heaviest of heavies with the improved guns and ammunition of our new light and medium tanks. We are not going to spend money on heavy tanks simply because the "other fellow" has them.

In the vital field of antiaircraft, the advent of jet aircraft

has required radical departures from World War II equipment. The continuing development of planes which attain ever-increasing speeds has further emphasized our need for new counterweapons of all types.

Our best answer to date for the threat posed by aircraft at short and medium ranges is the new 75mm Skysweeper gun. This weapon has been developed to replace the present standard 40mm antiaircraft gun of World War II fame which does not have sufficiently sensitive fire control, sufficient range or sufficient destructive effect to engage modern aircraft. The primary new features of the Skysweeper are its integral radar-directed fire control system and its VT-fuzed ammunition. Tests to date indicate that this weapon is capable of engaging aircraft at supersonic speeds, both by day and night. We have orders for a limited number of these very fine weapons now and expect to buy more of them during each succeeding year.

For detecting and engaging high altitude aircraft traveling at near-sonic speeds, we are this year buying a number of extremely accurate fire control systems for use with our long-range antiaircraft guns. It is becoming increasingly clear, however, that we are approaching practical limits in the development of conventional antiaircraft weapons and that we must look for more promising means of meeting our foreseeable requirements. For that reason we are placing renewed emphasis upon antiaircraft rockets and guided missiles.

We are endeavoring to provide a series of new weapons which



USAF Photograph

A Chase SCG-18A all-metal glider comes in for a landing at Wright-Patterson Air Force Base.

will increase our capabilities against both aerial and ground targets. Within our program, which is correlated with the Armed Forces Guided Missiles Program, we are devoting the maximum effort possible to these promising new weapons. At our Antiaircraft Center at Fort Bliss, Texas, and our Guided Missile Proving Ground at White Sands, New Mexico, genuine progress is being made. We have under development an anti-aircraft rocket which we believe will effectively combat high-speed aircraft at altitudes and ranges that lie beyond the capabilities of antiaircraft guns, and an antiaircraft guided missile that gives promise of providing the even greater accuracy and lethality we seek.

We conducted a number of successful airborne and air-ground support operations during World War II and have made some progress since that time in improving the methods of committing men and equipment to combat from the air. However, we have really just begun to master the art of airborne warfare as contrasted with amphibious operations in which we have already demonstrated our competence. Of course we must keep the amphibious art alive, but we are placing increasing emphasis upon airborne operations.

We are working very closely with the Air Force in a joint effort to solve our mutual problems. Among the specific improvements we have made is the prototype of an airplane that can carry a tank. This is a significant achievement since our inability to deliver tanks by air was one of the greatest weaknesses of our airborne operations of World War II. This plane can carry 240 men or 50,000 pounds of cargo.

We have also developed airplanes and equipment that have not only carried successfully the jeep and the 105mm howitzer but have permitted their being dropped by parachute. We have prototypes of gliders that can carry double the loads transported in World War II and a new assault transport plane that may actually replace the glider in airborne operations.

It must be emphasized, however, that we are far from meeting our requirements. Our airborne troops must have more fire power, an airborne tank that some day we may be able to drop by parachute, and greater artillery support, including airborne antiaircraft weapons for our paratroopers after they hit the ground.

Our experience in World War II clearly indicated the vital necessity for tactical air support in the conduct of ground operations. As a matter of fact, tactical air support really is

the "artillery" of airborne operations. In any land operation the artillery capabilities of modern tactical aircraft extend and strengthen the fire of ground weapons and are extremely effective against tanks and other armored vehicles. In all our training we are stressing air-ground coordination in order that we may be prepared to make the most effective use of tactical air support in future operations.

The success of our ground operations in any future war will depend more than ever before upon the degree of air support that is provided. Given air transports in sufficient quantity, our infantry divisions can assume greater strategic importance in the far-flung operations of a global war. With the necessary gliders and other specialized equipment, our airborne divisions can go over the enemy's lines to strike vital targets which otherwise could be taken only at great loss in men and equipment. And with the increased fire power afforded by tactical air support to isolate the enemy and drive him to cover, our ground units can gain the freedom of movement quickly to overcome the enemy.



Department of Defense Photo

The Navy's new air-to-air combat rocket, the "Mighty Mouse," is small enough to be carried in quantity by its mother aircraft, yet fast and powerful enough to destroy any known plane with a direct hit.



Department of Defense Photo

A diver controls the air line and air valve as he walks through thick submarine growth.

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UNDERWATER TROUBLE SHOOTERS

By

MASTER SERGEANT MERLE E. LARSON

THE cold, murky waters of the James River closed over the grotesquely uniformed diver as, with expert care, the tenders on the diving barge played out the life line and the air hose. Corporal Joseph Murphy, undergoing training as a deep sea diver at the Army Transportation Corps School, Fort Eustis, Virginia, continued his slow descent into the darkening depths, his trail marked by bubbles rising from the air exhaust.

Inside the 192-pound diving suit, Murphy felt the growing weight of the water cause his specially constructed suit to press closely to his body. Automatically, familiar classroom principles were called into practice. In synchronization with his descent Murphy adjusted the air pressure valve to balance the mounting pressure. Perspiration dampened his inner clothing and he shivered—either from fear or the cold, or both.

Murphy experienced a strong compulsion to call to his teammates that he was coming up, that he wanted to free himself from his underwater prison. Then, as he restrained himself, the claustrophobia passed and his mind began to function more clearly. A diver must never become excited, he reminded himself. After what seemed an interminable time, his heavily weighted, tightly laced shoes gently touched the soft mud bottom. With a slight bounce he came to rest firmly on the river bottom at a spot where man had never trod before. There was an exultant note in his voice as he called over the telephone the terse message, "On bottom."

Murphy listened carefully to the instructions telephoned to him by the control sergeant. Following directions from above Murphy moved slowly along the muddy floor, watching carefully for obstructions that might foul the lines behind him.

MASTER SERGEANT MERLE E. LARSON is on the staff of the Public Information Office, Fort Eustis, Virginia.

He leaned his body forward to reduce the effects of the current on his movement. When he met an obstacle in his path, he went around it or over it to prevent becoming entangled.

Topside, the tenders and control men performed their jobs of pumping air, maintaining communications and observing the wake of the bubbles that indicated Murphy's location and direction of movement. Finally the control sergeant directed Murphy to retrace his steps and prepare for the ascent. At approximately the point where he had first touched bottom, Murphy adjusted the air supply for greater buoyancy.

Slowly he ascended, making sure that his rate of rise did not exceed 25 feet a minute—the maximum climb speed that permits the body to adjust itself to the changing pressure. On the barge again Corporal Murphy received the congratulations of his teammates and instructors. By his newly gained skill this soldier, who only a few months earlier had been a clerk at the San Francisco Port of Embarkation, had proved his fitness to join the highly select group of military deep sea divers.

In both selection and training, Murphy's experience typifies that of other students at the Army's only deep sea divers' training center. Just as a parachutist or a submariner does not jump or submerge until he has been through intensive preliminary schooling, so Murphy had been taught the intricacies of diving before his first underwater test.

To be accepted for diving training, a candidate must meet stringent eligibility requirements. He cannot be more than 30 years of age. Moreover, he must volunteer to undergo the training, he must make better than average grades in the General Classification (GCT) and Mechanical Aptitude tests, and he must be in top-notch physical condition. Aside from these requisites, he must be versatile. Preferably, he should have experience in such technical skills as underwater oxyelectric cutting, burning and welding and underwater construction—work which he must be prepared to perform as a diver.

At any time graduates of the Fort Eustis course may be called upon to perform such tasks as engrossed their colleagues in World War II. Army divers have demonstrated their value in clearing channels and harbors, conducting salvage operations on sunken equipment and searching enemy ships on the ocean bottom for intelligence information. In peacetime they play a prominent role in underwater repair and salvage operations.

From the day of his arrival at the school, the novice plunges

into an intensive training routine. After a brief orientation he receives several days of instruction in the physics of diving. He learns the physical characteristics of air, water pressure, buoyancy and the part all these play in undersea operations. He learns next about the diving gear that he will use—its nomenclature, construction, inspection and repair, how to put it on and take it off and how to adjust it. The trainee thoroughly understands his equipment and its functioning before he gets near the water.

After several weeks of indoor instruction, the day for the first practice dive arrives. Even though the student may have maintained a high standard of proficiency in his studies, he still has no assurance that he will qualify as a diver. His first descent is the real test.

Corporal Murphy admits having spent a restless night before his initial dive. He had a peculiar feeling in the pit of his stomach and his breakfast was shoved away uneaten. He kept asking himself "Will I make it all right?" "How will it feel?" "Will I have claustrophobia?" In his mind he reviewed again and again the procedures that he had learned in the classroom.



Department of Defense Photo

The warrant officer head of the Diving Section explains items of diving apparel to Cadets from the United States Military Academy.

Claustrophobia—the morbid dread of being shut in or isolated—is a much discussed topic at the Fort Eustis school. For inescapably the diver is shut in and isolated when he is encased in the huge metal helmet, the bulky dress and weighted belt and shoes—not to mention the tons of water that will swallow him many feet under its surface. School records show that about 62 per cent of all diving students who are otherwise qualified for duty as divers are washed out due to claustrophobia. Normally this malady cannot be surely detected until the student makes his first practice dive.

Even after meeting all the requirements the student must undergo a rigorous schedule of self-discipline. He must not have consumed alcohol during the 24 hours prior to the dive. He must be free of respiratory or other ailments that might make him susceptible to compressed air illness or which might lead to rupture of the ear drums when he is subjected to changes of pressure. He should have had at least eight hours of sleep the preceding night.

Before the student submerges, the experienced diver in charge is careful to brief the student again on all the operations that are essential to a successful test. Assuming that the diver passes the test without difficulty, this does not mean that he is ready to graduate. Far from it. He has merely established his eligibility to continue study in the technical phases of diving duty.

Before he can receive the Army's Marine Diver Badge he must master the techniques of timber, steel and concrete construction, methods of demolition of docks, piers and ships, and actual salvage operations. Also he must complete individual diving problems in reconnaissance, pipe fitting and patching; he must become adept in surveying underwater conditions in mud, swift currents and various tides. He must be proficient in the use of the jetting nozzle and siphon and in the operation of hand tools, air tools, machine tools, pumps, winches and blacksmith equipment. In addition he must become an expert in rigging beach gear and hi-lines as well as underwater oxyelectric welding, burning and cutting. In short, the accomplished military diver is practiced in many skills in addition to diving.

In the postwar period servicemen-divers from Fort Eustis have been called upon for reconstruction and rehabilitation work in the harbors of Piraeus and Volos in Greece, and they have been dispatched to Alaska on special missions of harbor construction.

In 1947 the District Engineer at Richmond, Virginia, requested a Eustis diving team to assist in the raising of a 320-foot wooden barge loaded with 600 tons of slag which sank after hitting a rock in the James River. The barge was obstructing inland water commerce in the main channel. After pumping out the slag the divers used underwater demolitions to blast the hulk into sections to facilitate lifting to the surface. The divers were handicapped by the steady, swift current of the James; nevertheless, they accomplished the task without mishap.

In a recent training operation a diver from the school retrieved from the bottom of the York River authentic relics from a ship of Lord Cornwallis' fleet that had been sunk in the siege of Yorktown in 1781.

In other operations the school's Diving Section is credited with having recovered a total of 36 bodies of drowned persons from Chesapeake Bay, the Gulf of Mexico, the James, York and Warwick Rivers, and from various lakes in the vicinity.

As part of its mission the section has staged a number of demonstrations before civilian and military audiences. Many thousands of persons including Cadets from the United States Military Academy have witnessed these displays.

Although the diving course at Fort Eustis is planned and supervised by the staff and faculty of the Transportation School, the actual technical instruction is conducted by licensed divers of the Diving Section, 25th Battalion, 7th Trans-

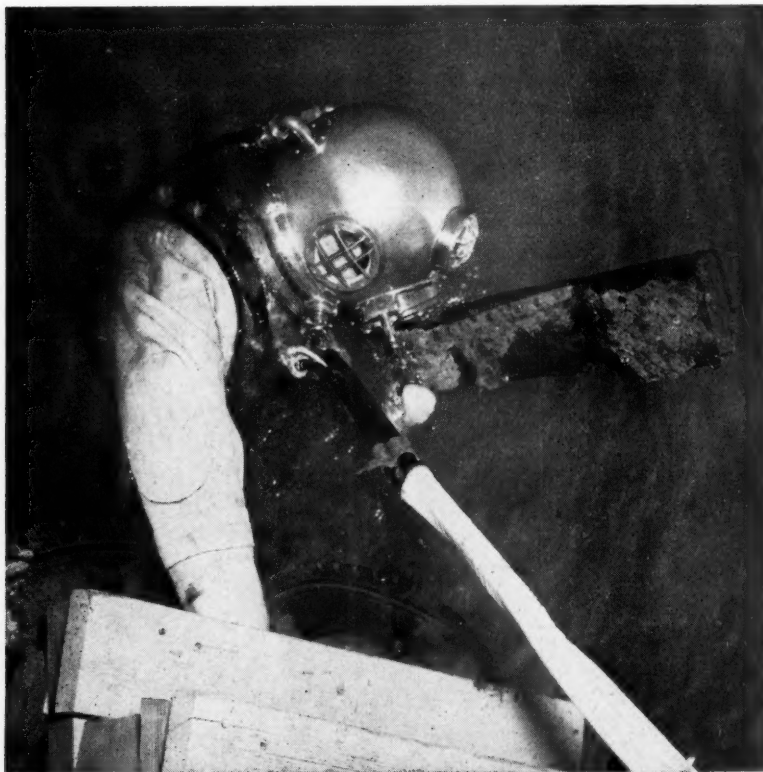


Department of Defense Photo

A diver descends from an amphibious truck to search for a drowning victim, a task the Diving Section is often called upon to perform.

portation Training Regiment. The instructors who teach the technical phases are mainly former Navy and civilian divers who entered the Army for special assignment to diving activities. Other instructors are Transportation Corps trained divers, like Corporal Murphy, who were retained in that capacity upon graduation.

The six-month diving course, unique in Army operations, is open to all enlisted men who can qualify. A similar course is conducted by the Navy. From these sources the Nation is assured of a continuing reserve of highly critical specialists for any emergency involving underwater salvage, search, repair or rescue.



Department of Defense Photo

A piece of the hull of a British frigate sunk during the Revolutionary War is salvaged from the York River bottom by a Fort Eustis diver.

MEN AND MACHINES IN OCCUPIED JAPAN

By

CAPTAIN ROBERT D. CONNOLLY

COMBING the far reaches of the Pacific from sun-baked atolls to the main islands of Japan, a vast mop-up operation is reclaiming millions of dollars in vehicular equipment for use of Far East Command troops. Conducted since 1948 by the U. S. Eighth Army Ordnance Section's Industrial Group, Fifth Echelon, commonly called BIG-5, the automotive salvage program is not only saving millions of dollars for American taxpayers; it is also bolstering the Japanese economy by teaching modern industrial methods to about 10,000 Japanese workers, thus paving the way for a rejuvenated Japanese automotive industry.

Dollarwise, the BIG-5 program produces an estimated \$27,000,000 saving a year. In reclaiming jeep engines alone, BIG-5 saves \$6,840,000 annually. Since 1948 more than 28,000 long tons of spare parts, tools and equipment have been reclaimed at a saving of \$41,000,000, and 100,000 tons remain to be processed.

In the wake of our island-hopping victories in the Pacific war, considerable quantities of damaged automotive equipment, spare parts and tools were left marooned at widely dispersed points en route to Japan. To salvage this debris, a roll-up operation was launched. With gathering momentum, equipment was moved from isolated beaches and landing strips to large dumps for reshipment to reclamation depots in Japan.

Meanwhile, to handle this rising tide, the BIG-5 operation was organized in Japan. Surprisingly few industrial plants were found in the principal cities and those that were usable were widely scattered without regard to main transportation routes. It was therefore necessary to rearrange plant facilities

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U. S. Army Photograph

A shipload of damaged trucks and automotive parts arrives in Yokohama to be processed by BIG-5 plants.

for quality and volume production. BIG-5 first took over a few plants in the Kobe-Osaka-Kyoto area but soon moved nearer Tokyo. At both places it was necessary to build up a transportation system, supplementing rail and water routes with overland trucking. A railhead was established at Kawasaki, where rolled-up equipment could be taken by water.

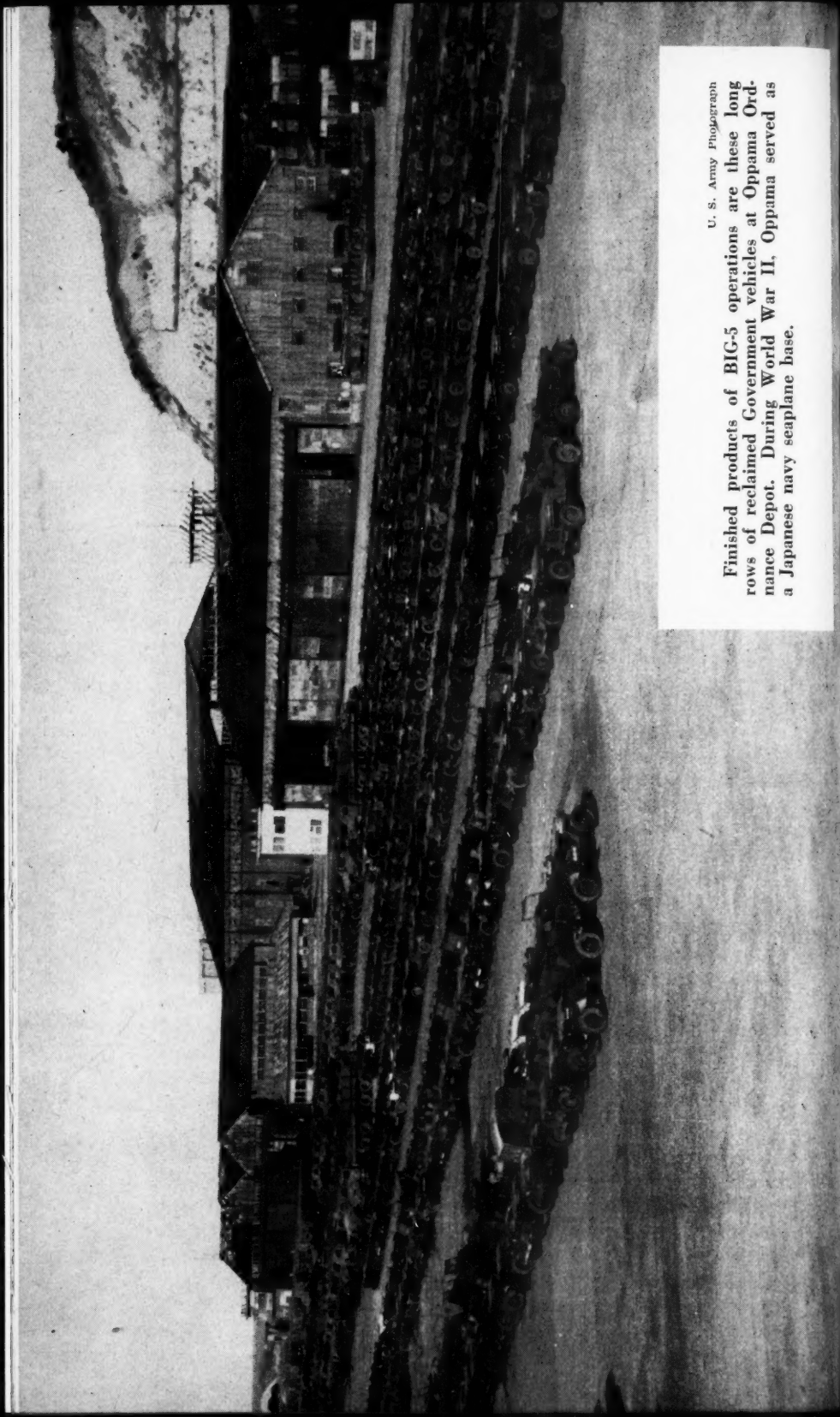
Today BIG-5 has two rebuilding plants at Nagoya, one for sedans and one for buses, operated under contract by Japanese manufacturers. At both plants BIG-5 engineers set up the assembly lines and instructed workmen in assembly line methods. Other plants are located at Sugita, where engines and power trains are rebuilt; at Akabane, where a tire plant was constructed to replace the tire barge which had come up from the islands as part of the combat forces; and at Oppama, which served originally as a storage space for thousands of vehicles.

To provide essential spare parts, about 25 Japanese manufacturers were placed under contract to supply batteries, safety glass and similar type supplies not salvageable in sufficient quantities. Even here, BIG-5 engineers found that they had to supply detailed plans, specifications and drawings for each item desired. In many instances, because progress in Japanese manufacturing had been stalemated for years, it was also necessary to teach the Japanese industrialists the latest production methods.

This backwardness in technological development was due largely to the Imperial Edict of 1939 prohibiting Japanese industrialists from participating in ideas and developments of other countries. The war did the rest. In order to get quality and quantity production from Japanese contractors who were still operating on a 1939 basis, Stateside methods had to be introduced.

In the early days of its operation, BIG-5 encountered antipathy toward mass production methods by both Japanese manufacturers and workmen. Much time and effort was required to dispel misunderstanding and ignorance. Ultimately, the problems were worked out with the Japanese workmen, technicians and engineers in the shops, in the laboratories and at the drawing boards.

Working for BIG-5 were some of the best engineering minds in Japan, including such men as Shiro Shimizu, who designed the Mitsubishi heavy tank used during World War II. Yet in the beginning, Japanese engineers showed a lack of initiative. Testers in the BIG-5 Research and Engineering Branch, for



U. S. Army Photograph

Finished products of BIC-5 operations are these long rows of reclaimed Government vehicles at Oppama Ordnance Depot. During World War II, Oppama served as a Japanese navy seaplane base.

example, would do a given job but would not question the results or the purpose. Now, however, they take the initiative, even seeking to improve test equipment. Today they expertly conduct tests on the many parts manufactured by Japanese industrial firms, using among their testing equipment foreign machines renovated by Japanese and BIG-5 engineers.

A new spirit of give-and-take is evident in the laboratory and on the assembly line. No longer must Japanese technicians be set to a task with each step in the process outlined. In their eagerness to cooperate, many conduct voluntary research. This spirit is reflected in other operations. In the Stock Records Division, where almost 100 Japanese girls are employed, the clerks are not content merely to do their jobs. They hurry through their lunches and even remain after quitting time in order to practice typing.

Mass-production methods and safety measures are slowly gaining acceptance among supply workmen. Used to thinking in terms of one- and two-ton loads, they find it hard to think in terms of hundreds of tons. Indicative of the methods used, it was not unusual for six Japanese workmen to attempt to move material by shoving separate wagons while a tractor that could tow all six stood idly by. BIG-5 supervisors had the additional problem of making the foremen understand that the use of tractors was a normal procedure. The Japanese propensity to disregard safety regulations and fire precautions has added gray hairs to many a BIG-5 head. A group of workmen would often overload a platform, place pieces of pipe under it for support, signal for a crane and then, with utter disregard for their own safety, would stand beneath the crane, watching it lift the load. In other ways, too, the Japanese resisted improved methods and safer procedures, sometimes for reasons of job security. As the advantages were demonstrated, however, they began to accept change.

The BIG-5 system of inspection and piecework payment was a further inducement shaping Japanese technology. Sub-standard products that failed to pass inspection had to be reprocessed by the contractor until satisfactory before he could be paid. Systems of cost accounting were introduced as another step in the education of Japanese in modern business and industrial techniques.

During a typical month's operation, BIG-5 plants can process 4000 engines and power trains, 3000 transmissions, 2800 transfer cases, 5875 axles, 11,500 steering gears and miscel-

laneous parts. They can put into condition 1900 trucks, 100 sedans, 5000 batteries and 20,000 tires. At Kawasaki 10,000 long tons of material are reclassified, reclaimed and salvaged monthly.

By 1951 the greatest part of BIG-5's reclamation work will be done. The backlog of tons of spare parts and equipment will have been sorted and repaired, the 20,000 vehicles which are now lined up on the Oppama air strip will have been processed, and the Far East Command will have its own replacement factory for parts and vehicles.

Many BIG-5 products are exported to other parts of the Far East Command and for these the Japanese government is reimbursed in dollars. By this method, the Japanese government is acquiring much-needed dollar exchange for the procurement of raw materials on the world market.

Benefits also accrue to the United States economy. Two-thirds of the parts required by BIG-5 are reclaimed from material salvaged in the theater. Of the remaining one-third, 75 per cent are manufactured locally and 25 per cent are brought from the United States. If, on the other hand, all the parts had to be brought from the United States, the added transportation costs alone would total more than \$600,000.

Besides saving millions of dollars for American taxpayers, the BIG-5 program is aiding in the rehabilitation of Japanese industry. This means ultimate savings, too, for it brings closer the day when Japanese contractors and laborers, using modern American tools, equipment and production methods, can begin to rebuild Japan's shattered industry, reconstructing that nation's economy on a more nearly self-sustaining basis.



U. S. Army Photograph

Japanese workmen use American equipment to recap tires for Occupation vehicles.

JUNIOR ROTC TRAINS FOR CITIZENSHIP

By

LIEUTENANT COLONEL G. M. BACHARACH

THROUGHOUT the United States 55,000 high school boys are learning in Junior ROTC units the most important and valuable lesson of a soldier—good citizenship. In their impressionable and habit-forming years, the military training they receive emphasizes a sense of duty and responsibility, respect for authority, and sound habits of self discipline, courtesy, neatness, obedience and cooperation. With these attributes to good character, they also receive instruction in hygiene and physical development as well as other training leading to strong and healthy physiques.

One of the appalling revelations of the months immediately prior to and following Pearl Harbor, when boys in their teens and early twenties were being inducted or were volunteering for service by the thousands, was the very considerable number who had to be rejected entirely or accepted with waivers because of physical deficiencies many of which were attributable to neglect of sound health practices. Another substantial group was made up of those whose personal histories showed criminal records of varying degrees many of which could, no doubt, be traced to lack of adequate character-building training in homes and schools.

The Junior ROTC program, as set forth in Army Training Program 145-5, has as its aim "to lay the foundation for intelligent citizenship by teaching the principles of leadership, respect for constituted authority and habits of precision, orderliness, courtesy, hygiene and correctness of posture and deportment . . . to give the student basic military training which will be of benefit to him and of value to the service if and when he becomes a member thereof." It is significant

LIEUTENANT COLONEL G. M. BACHARACH, GSC, is Chief, ROTC Division, Office of the Executive for Reserve and ROTC Affairs.

—and proper—that training as a citizen is made the primary objective in this program and training as a soldier is secondary.

Currently 266 high schools in all parts of the country have ROTC training as a regular course in their curricula at an annual cost to the Government of only one million dollars. Under fully qualified Army officers assigned to these schools as Professors of Military Science and Tactics, students enrolled in the Junior ROTC course are provided by the Government with uniforms, weapons and training equipment and are given the complete course in military training. In senior high schools the three-year course consists of three hours a week during each of the 32-week academic years. Units at schools which are essentially military in character offer a fourth year of training.

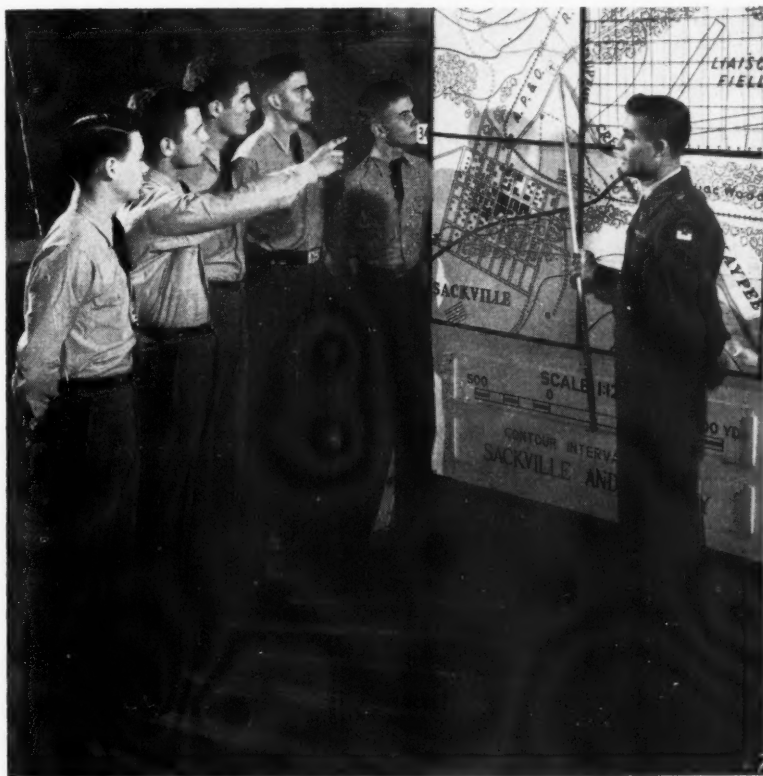
The first year of training is devoted largely to instruction in leadership, exercise of command, physical development, weapons and marksmanship. More advanced instruction in these same subjects is given in the second and third years. In the latter year map reading and tactics for small infantry units are added. The fourth year course, when given, continues the subjects of the first three years and introduces air photo interpretation and military instructional methods together with study of the National Defense Act and the organization and operation of the Reserve Officers Training Corps. Practical instruction is stressed, with lectures being held to a minimum. Maximum use is made of training aids and equipment. Demonstrations and individual and group performances are usually followed by discussions and critiques with active student participation.

The training objectives require that students in the third year of the course act as cadet officers and noncommissioned officers and that they be used to the greatest extent possible as instructors and leaders in all practical instruction. To accomplish this the Army personnel assigned to the unit direct the development of cadet officers and noncommissioned officers, supervise their work as leaders and instructors and advise them on proper training and leadership techniques.

On a much more limited scale, fifty-nine other high schools have Junior ROTC units authorized by Section 55c of the National Defense Act of 1916. Cost to the Government of these units is about \$10,000 annually since only rifles, ammunition and targets are provided and the course of instruction is far narrower in scope. No Professors of Military Science and

Tactics or other personnel are assigned to such units by the Department of the Army. Instead, instruction is given either by a regular member of the school faculty or by some citizen of the community who is interested in military affairs and who gives his time. Such instructors must be approved by the Department of the Army before the unit is authorized and equipment provided. Usually they are Reserve officers but they are not on an active duty status and either volunteer their services without compensation or are paid from school funds.

Completion of the Junior ROTC program does not give students any commissioned or other status in either the Regular Army or one of the reserve components as is the case upon completion of the Senior ROTC course. However the training they have received makes them especially desirable can-



Junior ROTC students at Staunton Military Academy, Virginia, receive instruction in map reading.

didates for enlistment in the Organized Reserve Corps or the National Guard and their advancement in such units is frequently more rapid than it would be otherwise. The high school graduate of the ROTC course who goes on to college is normally required to take the first two years of basic training although credit may be given for the first year on the basis of his high school experience. But he must complete the two years of the Senior Division ROTC in college and be of the prescribed age before he may be commissioned.

Evaluation of the Junior ROTC program cannot be based primarily on the military knowledge and skills acquired. Ninety-six hours of training a year for three years will never make a soldier, particularly when youth and immaturity are predominant factors. It can only lay a sound foundation. The immediate results are more evident in other respects. Secondary school supervisors reporting on the program in their schools say such things as "invaluable aid in character building" . . . "we have no juvenile delinquency among the ROTC students" . . . "our ROTC students are the neatest in the school" . . . "their grades are better than the average" . . . "they show more respect toward their instructors." But the best proof of the effectiveness and value of military training for teen-age boys lies in the three hundred or more applications which the Department of the Army now has from secondary school boards and officials all over the country requesting the institution of Junior ROTC programs in their schools—requests which at the moment must go unfulfilled for lack of funds and of personnel to serve as instructors.

Educators are, of course, constantly on the alert for any instruction or training courses which will be beneficial to the student, to the community or to the Nation as a whole. In the Junior ROTC program they find a course which attains all of these goals. Moreover, they find an excellent channel of community relations in the support which the program commands from veterans associations, fraternal organizations, civic clubs and individuals who, because of their own interest in military affairs, find a concrete fulfillment of it in their local schools. Community acceptance and indorsement of both types of Junior units is generally high, so much so that a proposal made last year to eliminate the so-called Section 55c type of units from Washington, D. C., high schools evoked such adverse criticism from community groups and individuals that the idea was hastily dropped.

THE PATTERN OF RECENT HISTORY

By

THE HONORABLE W. STUART SYMINGTON
Chairman, National Security Resources Board
Former Secretary of the Air Force

OUR national defense problems today are far different from those of the past, when the geographical position of the United States and the strength of its allies prevented the enemy from interfering with our mobilization for victory. A personal experience of the last war highlights this fact.

Some twelve and a half years ago, in the summer of 1937, I went to the seat of a great world empire, a gay and busy city. It was the end of the London season. There were the usual number of parties. Some of the wealthy were watching their horses race; others were taking off for the Continent.

With the exception of very few men—always and primarily Winston Churchill—foreign affairs were viewed with but normal apprehension. Many were sympathetic with Hitler. There was fear of Communist Russia, and fear of the growth of Communism in the French Army, which was considered the greatest army in the world. As against those two fears, many favored Hitler's Germany as providing a balance of power and a bulwark state.

Appeasement, however, was the order of the day. World trade, and the stock dividends from it, were important. Some were trying to "buy" security through appeasement—as if any nation can ever "buy" security through compromise with evil.

Fourteen months later came Munich. Some countries, particularly Czechoslovakia, felt they had been sold down the river. By then, however, there was no alternative, because the wolf had taken off his sheep's clothing. Hitler and his gangsters had revealed their true intent, and neither England, nor any other democracy, had adequate armament with which to trade against the war now sure to come.

In all free countries men stirred uneasily. They realized that soon they might be called upon to fight and die. They

asked one another: "How did we ever get into this position so soon after having won before?"

How did they? That is a point of critical importance today.

Less than four years later I again visited London, in early 1941. We sneaked up the coast of Portugal by air, praying for bad weather, hoping to avoid Hitler's then dominant long-range bombers.

Times had changed in London. Nobody took off for the continent of Europe except in battle planes, because the Nazis controlled that continent, just 20 miles away. Horses were being eaten instead of raced, and most of the entertainment was deep in the shelter of basements, comparatively safe from the bombs raining down overhead. One of Britain's greatest battleships, the *Hood*, had been sunk. Worse to them, a large island, Crete, had just been conquered from the air.

The British people stood up with indomitable courage. Their leaders knew, nevertheless, that all which stood between them and slavery was the potential production, wealth and manpower of the United States.

Today it is reasonable to ask ourselves: In case our country is caught with its defense guard down, what nation has the strength to stand behind us as we stood behind England? Our allies are in front of us, but who is behind us?

In his recent State of the Union Message, President Truman said: "In the world today, we are confronted with the danger that the rising demand of people everywhere for freedom and a better life may be corrupted and betrayed by the false promises of Communism." The danger to which he referred is self-revealing. Ten years ago these Communist dictators ruled some 212 million people. Today they rule directly and indirectly some 800 million people—a gain of 588 million or nearly 300 per cent—in just 10 years.

Ten years ago Russia's military forces were vastly inferior to the Nazi war machine; and because we believed they were sincere in their fight for freedom and truth, America sent them billions of dollars in equipment to maintain the struggle for their survival against Hitler.

How disillusioning have been these postwar years. Our former ally against Nazi aggression now stands revealed as believing in those very totalitarian dogmas which forced the United States to oppose the aggressive plans of the Nazis. This would not be so serious if our former ally, who once needed our help to survive, had not now become a great military power—a

power capable of unleashing the world's largest combat force against this country at a moment's notice.

Following VJ day, the United States, Great Britain and the other democracies demobilized to a small fraction of their peak war strength. Russia did not. On the contrary, during the past four years the Communist leaders of that nation have been steadily strengthening their army, their air force, and their undersea fleet. As a result, those who reiterate their determination to destroy the freedom-loving democracies of the world now have: a ground army greater in numbers than the combined armies of the United States and its allies; an air force whose strength in nearly all categories is now the largest in the world and growing relatively larger month by month; and the world's largest submarine fleet, plus an intensive submarine development and construction program.

Let us consider with equal concern the following three additional facts: (1) Behind their Iron Curtain there has been an atomic explosion; (2) Behind that curtain is the air equipment capable of delivering a surprise atomic attack against any part of the United States; and (3) Today, the United States has no adequate defense against such an attack.

To all freedom-loving peoples it has now become obvious that adequate military preparedness is the price of survival. The North Atlantic Pact and the Military Assistance Program both give evidence that the democratic nations of the world now join with us in viewing with grave concern this rearmament program, so costly to the world's economy and the living standards of hundreds of millions of people.

Because of the new standards of modern total war, adequate military preparedness must include sufficient combat-ready forces not only to meet the enemy's initial attack, but also to retaliate swiftly and successfully in order to protect the source of our greatest military strength—the capacity to mobilize those forces necessary for ultimate military victory.

The United States and the other nations of the Atlantic Pact believe that the democratic community of nations must remain steadfast and alert until that day—God hasten it—when there is complete assurance that no power or combination of powers harbors aggressive schemes and when all nations are participating fully in a world-wide community to advance and not destroy civilization.

Until that day, we can maintain the peace only by remaining strong.

ORGANIZING MEDICAL SERVICES FOR DEFENSE

By

RICHARD L. MEILING, M. D.
Director of Medical Services
Department of Defense

IN the years since VJ day, the American public has been deluged by press, radio and television with reports on new developments in defense weapons. Some of this information has been accurate, some imaginative or speculative, but nearly always it has been provocative, with such terms as "push button warfare" becoming familiar to even the casual reader. In this welter of technology, where each new announcement seems to have its echo of obsolescence, the role of the military physician, like that of his civilian colleague, must remain clear—the role of one who saves life.

Although this basic responsibility remains unchanged, the nature of the task confronting the military physician has changed as radically as have destructive weapons. To ignore these changes is to practice military medicine by the standards of the Gatling gun, the stern-wheeler and the open cockpit.

Just as mechanization brought the problems of the machine age to the military physician, so has the age of electronics, supersonic speed and nuclear energy laid before military medicine the challenging task of enabling our uniformed forces to sustain themselves under all types of conditions including unprecedented physical and psychological stresses. In some instances, this means adapting military needs to existing medical knowledge or, conversely, fitting known medical techniques and information to military requirements. In other cases, entirely new knowledge and methods must be developed.

Moreover, members of the Armed Forces must be assured of the same high quality of medical, hospital and related care available in the foremost hospitals and clinics of our country. This means keeping abreast of the latest advances in the profession by a close integration of military and civilian medical

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experience, the object being to assure the military forces an irreducible minimum of patients and a maximum state of combat readiness.

Keeping abreast of today's stream of technical and scientific developments has necessitated many policy changes in the military medical services. With the creation of the National Military Establishment and its later redesignation as the Department of Defense, it became evident that the military medical services—dealing as they did with the keystone of the organization, the human element—required coordination and policy control at the level of the Secretary of Defense. At the same time, it was important that this be done without in any way depriving the three military Departments and their respective fighting forces of the integral support and command control of their own medical services.



USAF Photograph

RICHARD L. MEILING, M. D.
DIRECTOR OF MEDICAL SERVICES, DEPARTMENT OF DEFENSE

In May 1949, the Office of Medical Services was activated as a part of the Office of the Secretary of Defense. This action followed recommendations of a similar nature by various groups, including the Armed Forces Medical Advisory Committee (Cooper Committee), the Hoover Commission Task Forces on Federal Medical Services (Voorhees Committee) and on the National Security Organization (Eberstadt Committee), and the Ad Hoc Committee on Medical and Hospital Services (Hawley Board). In keeping with the American philosophy of civilian control of national defense, the first appointee as Director of Medical Services, as well as the incumbent, was a civilian physician.

The Director of Medical Services is responsible for establishing and controlling policies, standards and programs of the military medical services, and for exercising general direction, authority and control over the administration and utilization of personnel and facilities throughout the health services of the Armed Forces. In these functions, he is assisted by a small military and civilian staff. Skilled specialists from the three Departments, serving as joint task groups, perform the necessary staff studies which are monitored by a military staff member of the Office of Medical Services. Completed staff studies are reviewed by the Director of Medical Services and forwarded to the appropriate agencies for consideration and recommendations. After approval in final form by the Director of Medical Services, the draft is presented to the Secretary of Defense for promulgation as Department of Defense policy. Should a marked difference of opinion arise among agencies, the problem may be referred to the Armed Forces Policy Council for resolution.

The Director and his staff meet weekly with the Surgeons General of the Army, Navy and Air Force in an informal group known as the Military Medical Advisory Council, with discussions running the gamut of health problems. As an adjunct to this advisory group, the chiefs of the Dental, Veterinary, Nursing and other allied Corps are available for consultation.

In addition, the Director meets monthly with the Armed Forces Medical Advisory Committee, popularly known as the Cooper Committee. This group of civilian medical and dental authorities—under the chairmanship of Charles P. Cooper, Chairman of the Board of Trustees of the Presbyterian Hospital, New York City—is appointed by and responsible to the Secretary of Defense. The Director of Medical Services advises

the group of current major policy problems of the health services, and the Cooper Committee, in turn, considers these and other policy questions and recommends appropriate steps to the Secretary of Defense. Through this means, the Department of Defense receives the advice and support of the Nation's civilian health leaders. This interrelationship between civilian and military medicine is of more than passing interest. During World War II, approximately 94 per cent of the medical officers serving in the Army and Air Force, and some 86 per cent of those in the Navy, were civilian professional men in uniform.

It is imperative that civilian and military medicine complement each other, for our Nation, great and wealthy as it is today, cannot afford, in funds or in professional talent, a maze of overlapping and duplicating medical programs. We must be certain that every defense dollar appropriated by the Congress is spent wisely and efficiently to strengthen the defenses of the Nation—that every dollar provided for the medical services performs a military medical duty. Dollars spent wisely bring both quantity and quality in medical services—the two criteria by which we are today developing medical programs and policies for tomorrow.

To achieve quality performance while insuring adequate coverage of military medical needs, an action program has been set in motion. The transportation of military patients, for example, has been organized on a pattern which fits present-day conceptions of space and time relationships—factors which have been radically altered during the last fifteen years.

After considerable study, air transportation was adopted as the standard method for moving patients of the Armed Forces. (See "Air Lift for the Sick and Injured," March 1950 *DIGEST*.) The policy, promulgated by the Secretary of Defense in September 1949, applies both to patients being returned from oversea hospitals and to those being transferred within the United States. In place of the three systems—hospital trains, hospital ships and aircraft—formerly in use, we now have one standard air system, resulting in more efficient, comfortable and complete service at less cost and a better utilization of available medical and related professional personnel.

Under the Department of Defense policy of joint utilization of military hospitals, military personnel are cared for at the nearest available military hospital of the Army, Navy or Air Force, rather than at a more distant hospital of the patient's own service. By thus eliminating much unnecessary travel,

the Armed Forces are able to provide equal or better service with available medical facilities.

The policy of joint staffing of hospitals by highly specialized personnel of the Army, Navy and Air Force was adopted by the Department of Defense in March 1949. Experience in the U. S. Naval Hospitals at St. Albans, New York, and Portsmouth, Virginia, and in the Army Tripler Hospital, Hawaii, has since indicated that joint staffing is a most desirable plan and that administrative difficulties encountered are subject to correction.

Bringing together the scientific work of military medicine and allied professions in a single forum, a merger of medical journals of the Army and Navy was effected in January 1950. At the same time this action served to reduce the costs in funds and personnel. All three military services now participate in the publication and use of the new journals—the *Armed Forces Medical Journal* and its supplement, *Medical Technicians' Bulletin of the U. S. Armed Forces*.

In close liaison with the Research and Development Board, the Office of Medical Services reviews the overall programs of research by the military medical services. Research plans, like other phases of health activities, must be plotted in terms of the military medical mission—the support of the combat forces. Practically every new development in weapons and major equipment brings new medical problems for the men who must use and operate them. The medical services of the Armed Forces must point their research time, talent and funds to solutions for these medico-military problems.

As a result of negotiations between the Director of Medical Services and the Surgeon General, U. S. Public Health Service, medical officers of the Armed Forces have been authorized to administer immunizations, including those for yellow fever, and to use the seal of the Department of Defense as official certification, with approval of the World Health Organization.

Uniform policies and standards are being applied in the medical training programs of the Armed Forces, under which physicians may serve internships and residencies in hospitals of the Army, Navy and Air Force and in civilian hospitals.

Under standards announced in March 1950, medical school graduates may apply for Medical Corps Reserve commissions in the service of their choice and, if accepted, receive full pay and allowances while taking their internships in either military or civilian hospitals. Physicians applying for this train-

ing volunteer to serve in the military forces for minimum periods of time, normally from one to two years, following the internships. Under a similar arrangement, medical officers of the Regular establishment may apply for residency training in a selected medical specialty, provided they volunteer to continue in military service after training for stated periods varying from two to seven years.

A somewhat similar program is conducted for dentists. Fourth-year dental students may apply for commissions in the Medical Service Corps Reserve and receive full pay and allowances while completing their final year. Upon graduation, they render two years of volunteer duty as officers of the Dental Corps Reserve on extended active duty.

Uniform terminology in reporting the bed status and bed capacities of Army, Navy and Air Force dispensaries, clinics and hospitals was introduced in January 1950. This standardized nomenclature will permit a more ready comparison of facilities, both within the Department of Defense and between military and other Federal and private hospitalization systems.

As a result of research in management procedures undertaken two years ago by the Army Surgeon General, a study group in the Office of Medical Services is drafting plans to introduce the latest tested methods of hospital management into the Armed Forces hospital programs.

By direction of the Secretary of Defense, the three Departments are introducing a performance type budget for the medical services, effective with fiscal year 1951, to include all funds incident to the cost of health services. During fiscal year 1951, the Armed Forces will be able to chart plainly the funds needed for and spent by the military medical services.

The Armed Services Medical Procurement Agency provides a noteworthy example of efficient inter-service cooperation. This Agency, a joint enterprise staffed with officers from the three medical services, procures all military medical, dental, veterinary and related supplies and equipment. Operating from a central headquarters, the Agency procured 21.5 million dollars worth of medical materiel during 1949. The Agency is a convenience to the businessman, enabling him to present his product to all three Departments through one central office. The Armed Forces also have benefited greatly through reduced operating costs, less personnel required for overall procurement and the consolidation of requirements.

The Agency also has shown marked success in standardizing

medical equipment. By arriving at common nomenclature and by reviewing the various items required, the three services have sharply reduced the total number of items listed, enabling hospitals of the Army, Navy and Air Force to operate with common types of supplies and equipment. As an aid in standardizing procurement procedures, a new "Armed Services Catalog of Medical Materiel" has been issued for use by all three services.

To meet any future mobilization needs, standard plans for mobilization-type hospitals are being developed for the three services. In cooperation with the Munitions Board, a medical task force is establishing criteria for mobilization hospitals and for their component units—wards, operating suites, laboratories and the like. With these uniform plans completed, the Armed Forces will be prepared to expand hospital care facilities promptly in event of a national emergency.

These and other basic policy matters are being pushed forward as rapidly as possible, to insure that the health phase of our defense plans is ready for any eventuality. In our overall planning, we must consider not only military medical needs but the health requirements and resources of the entire Nation. The military medical and allied services must be in a state of readiness which permits no delay in case of a national emergency. Moreover, we must achieve this high degree of preparedness at the least possible cost—while remembering that actual preparedness comes first and economy second.

Charting such a course leads us to one inevitable conclusion: The military medical services must concentrate their resources upon their primary mission of supporting the combat arms. To permit ourselves to deviate from this principle would be to jeopardize the health of our forces in uniform and to weaken the medical strength of the Nation. Ultimately, too, it would imperil our whole program of military technical progress, particularly if the man behind the gun is neglected or ignored until he becomes a patient in a hospital bed.

We face, then, a profound problem in human engineering, gauged to the infinite proportions of our expanding scientific world. Our men and women in uniform not only must have superior health services today but also the assurance that they may live and work effectively under any conditions which a future mobilization may require.

THE COMBAT LEAFLET-- WEAPON OF PERSUASION

By

MAJOR MARTIN F. HERZ

FIRED from guns, scattered by planes, and distributed surreptitiously by agents behind enemy lines, the combat leaflet is an important catalyst in the cauldron of total war. Frequently, its persuasive appeal has helped to precipitate those psychological reactions that spell the difference between surrender and unnecessarily prolonged resistance.

The effectiveness of combat leaflets cannot be judged solely by the number of deserters they produce. There are situations when a thoroughly demoralized enemy in an untenable tactical position will give up *en masse* in response to a leaflet appeal, but such situations are extremely rare. World War II experience demonstrated that those of the enemy who are already demoralized are in any event benefited by leaflets, regardless of whether or not those leaflets speak of desertion.

The plain fact is that most prisoners have to be taken by the infantry. While psychological warfare can help predispose the enemy in favor of giving up, the actual decision to surrender is an enormously difficult one for any soldier to make. Personal and national loyalties, group pressures and especially fear of the unknown are powerful deterrents.

One of the most important accomplishments of our combat leaflets in the European Theater in World War II was to persuade the enemy that, contrary to the allegations of Nazi propaganda, he would be well treated if captured by the United States Army. In this, we benefited from our excellent reputation dating back to World War I. Prisoner mail from German soldiers captured earlier in the war in North Africa and Italy was also an important factor. Often, combat leaflets made the difference between surrender and continued resistance.

MAJOR MARTIN F. HERZ, MI, USAR, now a Foreign Service Officer on duty with the United States Embassy in Paris, was in charge of combat leaflet writing with the Fifth Army in Italy, and with SHAEF during the invasion of Europe.

To the victorious American soldier who has not thought much about the possibility of surrendering to the enemy, there may not appear to be much difference between *surrender* and *capture*, since obviously a soldier may surrender and "be captured" at the same time. To the enemy soldier in battle, however, unless he was very politically minded and already disaffected, there was a world of difference between surrender as a voluntary act, and "submitting to capture" as something that "happened" to him. Interrogation of German prisoners showed that most of them, regardless of the circumstances, preferred to think of themselves as having been "captured" rather than as having "surrendered." In our leaflets, therefore, we preferred to speak of "situations when one cannot avoid capture," or to picture surrender as a military necessity rather than as a voluntary act.

It is not safe—unless there is reliable, conclusive evidence—ever to assume that enemy troops confronting us are disaffected and desertion-minded. There are cases on record when combat leaflets backfired badly because they were based on evidence obtained through the interrogation of deserters who were in no way typical of their comrades in arms. In most cases, however, it is also quite unnecessary to use themes which appeal only to disaffected enemy personnel. Even a perfectly loyal soldier may surrender if he believes that the tactical situation is hopeless, that his resistance will benefit no one or that there is no military merit in continuation of the war, and that he will be well treated upon surrender.

As far as combat leaflets are concerned, there is in most cases no need for sophisticated political propaganda appeals. The soldier in battle has a closely restricted horizon. When high explosive shells are bursting around him and he hears our tanks moving up, ideological considerations take a distinctly secondary place in his mind.

In Europe, leaflets that spoke plain soldier-to-soldier language were the most effective. We know from interrogations that enemy soldiers, in spite of rigid prohibitions, studied our safe-conduct leaflets very carefully, long before they had made up their minds to surrender. To be sure, it could be proved only in few instances that this reading matter had actually persuaded soldiers against firing another clip of ammunition before surrendering. The inference seems reasonable, however, that enemy soldiers who had leaflets on their persons when captured—in spite of the strict Nazi injunctions

against picking up, let alone keeping leaflets—presumably were somehow influenced by them in their behavior. Toward the end of the war in the West, about 77 per cent of the German prisoners had Allied leaflets on their persons.

Much can be learned from the mistakes of the Germans and Russians in their combat propaganda in World War II. The Nazis, for instance, often foolishly belabored President Roosevelt in their combat leaflets and attempted—completely without success—to spread anti-semitism among American soldiers. The Russians, on the other hand, in their early leaflets addressed to German troops, assailed the Nazi leadership and spoke of “fascism,” “imperialism” and other verbal concepts strange to the Nazi mind, and even exhorted German soldiers to “overthrow Hitler” in order to end the war. This exhortation would have been patently absurd even if the Germans had not been winning at the time. For the soldier in battle is usually incapable of political action. Mutiny is not a reasonable objective of combat propaganda.

On the Eastern front, because both the Germans and the Russians were unable or failed in some instances to provide food for prisoners, their propaganda had much need to emphasize good prisoner treatment. Also, for the same reason, their propaganda was much less successful than ours, although the Germans occasionally achieved spectacular successes by very simple techniques. According to one captured German psychological warfare officer, a Nazi leaflet that produced excellent effects on the Russians was one addressed to a surrounded body of troops who were furiously defending themselves against their assailants. The German leaflet merely read: “When you give up, be sure to bring a fork and spoon with you—you’ll need them.” Allegedly, this leaflet resulted in an onrush of simple Russians who, by slow logical deduction, had figured out that an enemy who asked them to bring their eating utensils could not be planning to starve them if they surrendered.

Our own propaganda was not always proof against the fallacy of attempting to export domestic propaganda. Since to our people the war in Europe was pictured principally as a fight against Hitler, there was occasional pressure to present the battle in the same terms to the German soldier. The acid test of any such propaganda, however, must be whether it lessens the enemy’s will to fight. If it is designed to *reeducate* the enemy, then it is postwar propaganda and has no place

G.I.s of the 45th Division!

Many thanks for your nice leaflets! So you think that we deserve some rest and an occasional leave, do you? Well, what about the blisters at your feet? We don't mind not getting any leave just now. You don't get any leave either. All that matters to us is that

You Won't Get to Berlin.

You have been told the war would end in autumn. Your division, well known to us since the days of Sicily and the Anzio-Beachhead, did not achieve anything spectacular so far. Quite a number of your fellows, however, have kicked the bucket. Pretty tough for the replacements who never dream of having to cross the pond, isn't it? Your pals told us how much they "enjoyed" fighting. No wonder

They had no idea what they were fighting for!

One of them said that he had been **FIGHTING FOR FREEDOM**. He didn't seem to be one of the brightest boys.

You left your freedom behind

with your folks at home, your parents, wives, children, girlfriends of whom you keep such a lot of photos.

Stugging it out in the mud you have a good chance to be killed or maimed for the sake of war-mongers and profiteers who once more contrived to stay at home.

Your buddies are glad to be out of the mud. They are sure to return home safe and sound. They have taken the short-cut. You still have a long way to go! Keep alive, if you can. For remember

You are still wanted ... for JAPAN!

MATERIAL-SCHLAGT!

VERHALTUNGSMASSREGELN

Wenn der Amerikaner angreift, so tut er das gewöhnlich in grossem Stil. Er verschwendet Granaten, um Menschenleben zu sparen. Er kann sich das leisten, denn er hat die Mittel — er hat übergenug an Artillerie, Fliegern, Flammenwerfern, Panzern, Panzerpflügen und Raketenwaffen, um jeden Widerstand zu brechen. Das steht fest.

Wenn der Angriff Dich erreicht,
kannst Du versuchen, ihn aufzuhalten — mit unzureichenden Waffen, unzureichender Munition, unzureichender Ausrüstung. Ob Du es versuchst, ist Deine Sache. Millionen sind auf diese Weise schon gefallen.

Oder Du rettst Dich, indem Du in Deiner Stellung liegen bleibst und der amerikanischen Infanterie klar zu verstehen gibst, dass Du Dich ergibtst. Ob Du Dich ergibtst, ist ebenfalls Deine Sache. Millionen haben sich auf diese Weise getötet und wissen mit Bestimmtheit, dass sie nach Kriegsende die Heimat wiedersehen werden.

Die umstehenden Ratschläge an deutsche Soldaten sind der amerikanischen Infanterie bekannt. Falls Du gefangen genommen wirst, zeige dieses Flugblatt vor!

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in combat propaganda. It may have been desirable for the Russians, as it was and is desirable for us, to undermine German belief in Hitler and destroy the Hitler-legend, but all such purposes must be subordinate to the overriding purpose of winning the war, winning it quickly and at the smallest possible cost. Therefore, when political propaganda involving an attack against enemy symbols slows the advance of our fighting arms, such propaganda is harmful. Any political theme that stiffens the enemy's will to resist is bad.

Combat leaflet writing is a specialized craft which calls, among other things, for a gift of projecting oneself into the mind of the enemy soldier. That this requires not only adaptability and language background, but also copious intelligence of a special kind, goes without saying. Excessive sophistication and attempts at being "devilishly clever" have, on the other hand, often harmed our own combat propaganda in the recent war.

An enemy leaflet, addressed to our 45th Infantry Division after the Battle of the Bulge, demonstrates by its mistakes some positive points about leaflet writing. (See Exhibit 1.)

The first principle evident is that it is not psychologically profitable to "answer back" in combat propaganda. Usually the persons whom the leaflet reaches know very little about the propaganda that has been addressed to their enemy. Secondly, it should be recognized that taunts and jibes are more likely to arouse increased hostility than a desire to surrender. In the case of the 45th Division, for example, the German leaflet's claim that it had "achieved nothing spectacular so far" actually made some readers fighting mad. Moreover, ridiculing what prisoners have said will assuredly make captivity seem less inviting. Most important, however, is the unintended effect of a sly approach to the prisoner theme. The German leaflet, by implying that the captured Americans "took the shortcut," appeals for a treasonable act of surrender. As we have seen, this is not only unwise but also entirely unnecessary even in the case of disaffected personnel.

On the positive side, a representative American leaflet (Exhibit 2) demonstrates a few practical, positive points. In its approach, the leaflet accommodated a known alibi of the enemy—which may in fact have been a truth—that he was not being outfought but overwhelmed by our superiority of materiel. Since this acknowledgment cost us nothing and salvaged the enemy's military honor, it was a point that was made

frequently in our combat propaganda in Europe. Registering initial agreement on one subject is in fact always extremely desirable from the psychological point of view, for it can never be taken for granted that the enemy will entirely identify himself with our cause. Once such an initial point of agreement has been found, the psychological manipulation of the enemy can proceed with profit. There need be absolutely no dishonesty inherent in such agreement. Only bigots and fools—and cowards—find it dangerous or dishonorable even to agree with the enemy that 2 and 2 make 4.

On its reverse side, this particular United States leaflet gave concrete instructions on how to stay alive in specific combat situations, such as fighting in cellars, retreat by daylight, or defense with light weapons against tanks. Each of these situations was described in highly unattractive terms, but only from the military point of view, and the conclusion was ostensibly left to the reader, even though he was also reminded not to wait too long before surrendering lest he find it too late.

TRANSLATION OF EXHIBIT 2

BATTLE OF MATERIAL!

R U L E S O F C O N D U C T


When the Americans attack, they usually do so on the largest scale. They waste shells in order to save lives. They can afford that, for they have the means—they have more than enough in artillery, planes, flame-throwers, tanks, tankdozers and rocket weapons, in order to break any resistance. That is a fact.

When the Attack reaches you

you can try to stop it—with insufficient weapons, insufficient ammunition, insufficient equipment. Whether or not you try this is up to you. Millions have died in this manner.

Or else you can save yourself by staying in your position and showing clearly to the American infantry that you give up. Whether you surrender, is likewise up to you. Millions have saved themselves in this manner and know for sure that they will see their homes again after the war.

The instructions to German soldiers, which appear on the reverse side, are known to the American infantry. If you are captured, show this leaflet.



A NOTE ABOUT THIS LEAFLET: This general attack leaflet was written to conform to battle conditions in winter when experience showed that the German defense tended towards the villages. This version was used in American sectors only.

Although the foregoing technique proved useful with German soldiers, there is no evidence that the same approach would be equally successful with enemies of another nationality. Only psychological combat intelligence and experimentation with various techniques can show which line has promise. Prolonged interviews with cooperative prisoners, detailed descriptions of typical surrender situations by prisoners as well as by friendly troops, captured enemy documents relating to our propaganda, memory tests conducted with sample groups of prisoners, analysis of counterpropaganda and finally a count of leaflets found on prisoners—all these and other techniques are required to test the effectiveness of any new approach in combat propaganda.

An entirely different problem is posed by propaganda addressed to an enemy civilian population. If the enemy is a totalitarian state and the civilian population is not in the combat zone, individual action to effect surrender is of course entirely out of the question. In such a case, particular care must be exercised to avoid frustrating the civilian reader. Registering agreement with the enemy civilian's plight may merely have the effect of prompting him to say: "I agree, but what can I do?" When he finds that there is really nothing he can do about it, he cannot very well be blamed for persisting doggedly in his course of action.

In the combat zone, it is of course an easy matter to give the enemy civilian specific instructions on what to do in his own interest, in such matters as evacuation or staying behind, persuading soldiers to surrender, sheltering deserters, hiding foodstuffs, and the like. When it comes to giving reasonable advice to the civilian deep in an enemy totalitarian country, however, the propagandist is usually confronted with an extremely difficult problem. Great honors await the person who, in the event of a new conflict, can hit upon a realistic mode of instruction to enemy civilians *which will help them and us at the same time*. For surely this is the essence and the beauty also of combat propaganda: that it can afford to be truthful, and that it contains objectively good advice by which everybody profits—except the enemy command. Not only are many Americans alive today who might have died but for our combat propaganda; but many a former enemy soldier would have died, too, if he had not allowed himself to be convinced by our message.

BRINGING MOVIES TO THE SERVICEMAN

By

FRED BUND, JR.

THE serviceman is a discriminating motion picture critic, and, contrary to popular opinion, he actually likes films about the Armed Forces, World War II and similar type cinematic fare seasoned with action-packed military flavor. Such films, however, must be technically accurate and convincingly portrayed. Otherwise the man in uniform—frequently himself a veteran of the battles dramatized on the screen—will register his disapproval vociferously.

During the showing of a recent release, for example, the service audience was quick to spot the anomaly of one type airplane taking off and another type, supposedly the same plane, making the landing. Nor do plainly recognizable miniatures of military equipment go unnoticed. Famed throughout the services is the film short prepared by a commercial artist to announce coming attractions. It showed a field piece that recoiled before the projectile left the barrel. Each showing of this "boom" film, as it came to be known, was accompanied by the appropriate sound effect from the audience.

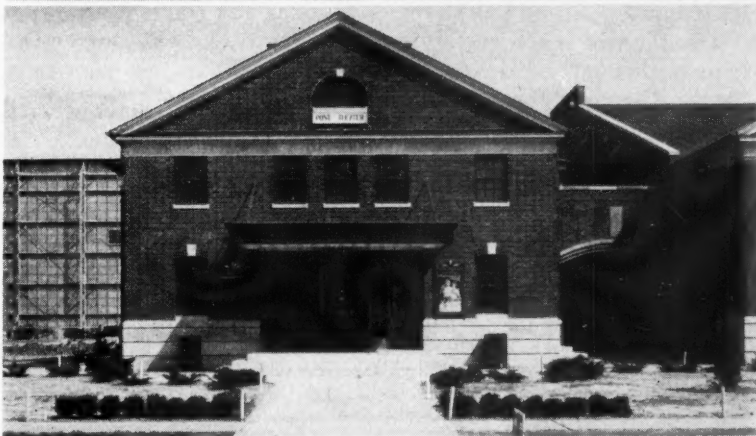
Aside from subjects about the Army, Navy, Air Force, and Marines, generally the tastes of soldiers and airmen run to musical reviews, comedy and well-made action pictures. In every case, the picture must move or the audience will.

Made available through the facilities of the Army and Air Force Motion Picture Service (AAFMPs), cinema showings at military installations attracted a peak audience of 245,000,000 a year in the Zone of Interior during World War II. Wartime soldier opinion polls proved motion pictures to be the number one entertainment activity which the Army provided its troops. Second only to letters from home, movies contributed most to soldiers' morale. One installation commander reported a

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marked improvement in the drill, dress and bearing of recently arrived recruits immediately after the showing of a film based on an Army theme.

Carrying forward its mission of providing the latest motion picture releases, the AAFMPS is a unique cooperative enterprise dedicated to the serviceman's entertainment and relaxation. For the soldier's or airman's admission fee, he gets only entertainment. Although pressures have been brought to bear from time to time by persons and agencies espousing particular causes, all efforts to "educate" the soldier or airman, orient him, sell him something or get a donation have been resisted successfully. AAFMPS policy holds that when the serviceman



USAF Photographs

A study in contrasts at Langley Air Force Base, Virginia. The first theater (above) was replaced by the brick structure (below).

buys his ticket he does so to be entertained and not to be singled out for special sales pressure, forcible education or indoctrination.

Organized in 1921, the Army and Air Force Motion Picture Service continues to function as a cooperative enterprise—owned in effect by the personnel of the Army and Air Force. In operation it embraces the practical application of the big brother principle. Larger installations give financial assistance to the smaller, more isolated stations that otherwise could not afford the necessary facilities for motion picture entertainment. While the larger posts provide the major portion of the total receipts, the smaller posts contribute to the increased buying power that makes possible lower cost operation of the system. At the same time, posts large enough to clear a profit share in those profits. The result is that military personnel receive a direct return in the form of the latest and best films shown at a cost within their means.

In cooperation with the film industry and theater exhibitors, new pictures are distributed to Army and Air Force theaters concurrently with their commercial release and without regard to prior showing in neighboring civilian communities.

To insure continuance of this favorable relationship between AAFMPS and civilian exhibitors, every effort is made by the Service to operate its theater system so as to preclude charges of unfair competition. Advertising is restricted to the post, and attendance is limited to military personnel, members of their households and civilians residing on the reservation.

The Service is self-sustaining and operates wholly on receipts gained through paid admissions. No funds are appropriated by the Congress for its operation or maintenance. In fact the Service contributes to other nonappropriated funds which support to a large extent the recreational and welfare programs of the Army and Air Force. In addition AAFMPS makes available its facilities and equipment for the showing of training and orientation films—facilities that otherwise would have to be procured with funds appropriated by the Congress. During World War II, it was called upon to assist in distributing training and orientation films. The Service completed the saturation showing of "Two Down and One to Go" to Army and Air Force troops within a few weeks after the collapse of the Axis nations.

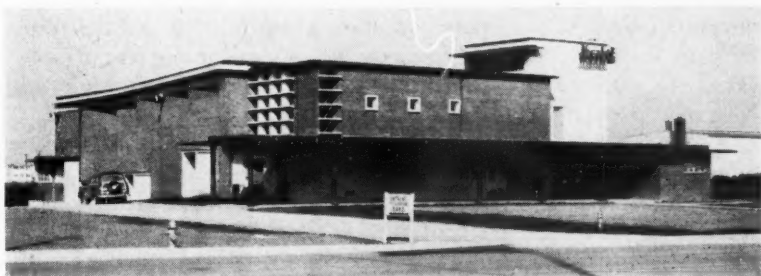
Theaters at Army and Air Force stations operate under supervision of a commissioned officer named by the installation

commander. Projectionists, ticket takers and personnel filling other theater positions are enlisted men who work voluntarily in their off-duty time, and for this they receive additional pay.

Prior to 1921, motion picture entertainment at Army posts was furnished by a commercial film distributor under contract from the War Department. A study undertaken by the General Staff concluded that a satisfactory motion picture service could be assured only if conducted by an official agency on a centralized basis, and a fund was established to underwrite losses of the new organization. Actually, with the exception of the first few months of operation, the Service has been self-supporting ever since.

Upon its inception the Service acquired a miscellaneous lot of buildings—service clubs, mess halls, hangars and the like—whose only claim to being theaters in the conventional sense was that they were officially so designated. In 1926 the Service launched a remodeling program which consisted mainly of installing sloped floors, and insulating walls and ceilings to improve acoustical qualities. Stringent economy being the watchword, lighting fixtures were frequently made from salvaged helmets or wash basins hung from brass chains. Draperies often consisted of unserviceable blankets or dyed target cloth. These improvements, though primitive, resulted in increased use of the theater facilities.

Later a limited construction program was undertaken, restricted to a maximum outlay of \$20,000 for each structure. Military personnel joined in constructing a number of these buildings in their spare time. Thus, when World War II began, the Army was already equipped with a number of attractive theaters which would have been a credit to any community.



U. S. Army Photograph

The newest type theaters, such as this one at Fort Campbell, follow modern, functional lines.

More recently constructed theaters are modern in every respect and incorporate the latest design in equipment and fixtures, including air conditioning. Further modernization is under way to bring to the soldier (and airman even better theater accommodations. And the entire construction program has been achieved without the use of appropriated funds.

Prior to February 1946, the Service was concerned primarily with providing motion pictures for installations in the United States, Alaska and the Atlantic bases. Pictures for overseas areas were procured independently of AAFMPS. During World War II, films for overseas distribution consisted mainly of 16mm films donated to the Armed Forces by the motion picture industry. Today, as a result of an integrated motion picture operation, films distributed by the Service are available wherever American soldiers and airmen may be stationed. These overseas operations are conducted with a high degree of autonomy, with AAFMPS exercising only nominal supervision and acting largely in the capacity of adviser.

Until recently a division of the Office of the Chief of Special Services, Department of the Army, AAFMPS operates today as a joint organization under the jurisdiction of the Joint Welfare Board, Departments of the Army and Air Force. The six-man Board is composed of three general officers each from the Army and the Air Force.

The Service has six regional offices located at New York, Washington, Atlanta, St. Louis, Dallas and San Francisco. These offices perform the same general functions as the district offices of a commercial theater chain, with such modifications as are necessary to comply with military procedures. The Oversea Branch, at New York City, is concerned with the procurement and shipment of 35mm and 16mm film to overseas areas. An engineering depot is maintained at St. Louis for the procurement and maintenance of 35mm equipment in the Zone of Interior and for the procurement of equipment for overseas areas. The depot's staff of engineers installs equipment and provides preventive maintenance in the field.

As stockholders in the Army and Air Force Motion Picture Service, every soldier and airman receives dividends in the form of high type motion picture entertainment, presented at reasonable rates concurrently with civilian theater showings. At the same time, the Army and the Air Force reap the immeasurable benefits that accrue from the heightened morale of those who man the Nation's defenses.

UNIVERSITY RESEARCH FOR DEFENSE

By

RAYMOND J. WOODROW

WORKING unobtrusively in the laboratories of the Nation's universities, task forces of professors and graduate students—among them physicists, chemists, psychologists, geologists, engineers, and kindred specialists—are engaged in a continuing campaign to expand the frontiers of basic scientific knowledge. The tools of their trade include slide rules, electronic computers, retorts, spectrometers and mechanical testing devices. Their findings go to swell the reservoir of fundamental knowledge from which practical new developments flow. Under sponsorship of the Army, Navy, Air Force and other Government departments, these scientists are increasing the sum of human knowledge in the realms of the basic physical sciences. At the same time, they also are helping to safeguard the Nation which assures them freedom of inquiry and encouragement toward their goals.

In the years since World War II, the Armed Forces have been allotted an average of half a billion dollars annually for research and development. The bulk of this sum goes for specific projects directly applicable to military use. Frequently, however, the theory basic to current research may require extended analysis and exploration. Basic research of this nature is generally carried on by private industry or by universities under Army, Navy and Air Force contracts.

The Office of Naval Research conducts the most extensive university research program, with about 700 projects being carried out in 150 institutions at an approximate annual cost of \$15,000,000. The Air Force has its Office of Air Research which, among other activities, supports programs of basic research in the universities and other nongovernmental institu-

RAYMOND J. WOODROW is Executive Officer and Secretary, Committee on Project Research and Inventions, Princeton University.

tions. The Army, too, farms out many scientific problems for study and analysis.

In a recent statement on science and public policy, President Truman's Scientific Research Board emphasized: "The security and prosperity of the United States depend today, as never before, upon the rapid extension of scientific knowledge. So important, in fact, has this extension become to our country that it may reasonably be said to be a major factor in national survival."

Commenting on this pronouncement, Hugh S. Taylor, Dean of the Graduate College of Princeton University and Chairman of the University's Committee on Project Research and Inventions, declared: "The universities have a vital role to play in this extension of scientific knowledge. Research in the universities must be directed toward the far horizon as well as the proximate issue. It is the particular obligation of the universities to provide the capital of basic knowledge which society requires."

The postwar years have seen many changes in the university scene, but few so marked as the growth of research projects under the sponsorship of the Federal Government, supported to a major extent by the Army, Navy and Air Force.

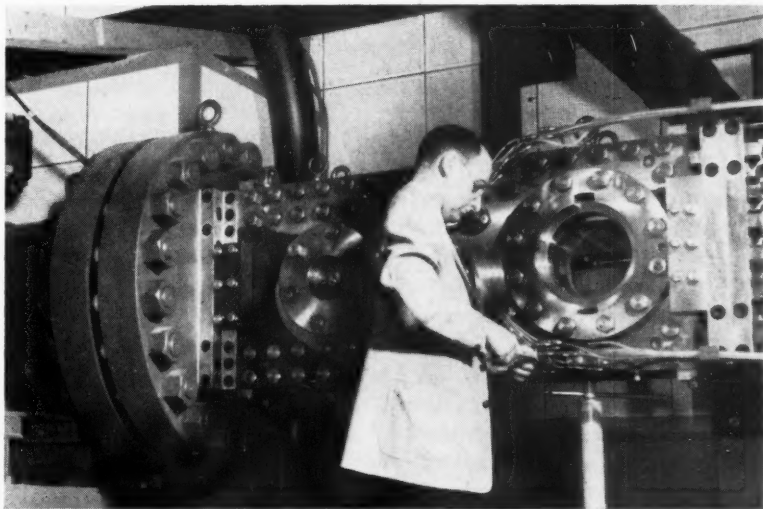
Two factors contributed to this trend—a heightened awareness of the military importance of basic research stemming from World War II experience, and the increased necessity for universities to turn to outside sources for funds in support of research. In the latter instance, this recourse to outside sources can be partly attributed to the inflated costs of practically everything in the postwar years, and the fact that endowment funds have not been sufficient to meet these increased costs. More important, perhaps, have been the increased complexity and cost of research in many fields, impelled by the necessity for having more powerful and accurate means of investigation in order to probe more deeply than past research has done.

Before the war, research in universities was conducted largely on an independent basis by individual professors, each with several graduate students, utilizing equipment which was relatively simple by today's standards and which was built in most part by the professor and his students. Today, however, in many areas new knowledge can be obtained only through the use of expensive and complicated apparatus such as the

supersonic wind tunnel for research in aerodynamics and the cyclotron for research in nuclear physics.

Accompanying this increase in complexity and cost of equipment is the development of the team approach, with specialists bringing to bear the most advanced knowledge from many fields. To design, build and keep running this increasingly complex maze of apparatus would take nearly the full time of faculty members and graduate students, without any time for research; therefore, staffs of machinists, technicians, designers, computers and other specialists are required. Much of this equipment becomes obsolete and must be replaced or modified at what a business or production man might call an appallingly high rate. For research tools, unlike production tools, are not used over and over again for the same job but must be replaced or adapted for each new research problem. All this requires money in considerable amounts. The proceeds, however, are correspondingly great—in new knowledge, data and techniques, in improved training of students, and in maintaining a faculty that is stimulated and awake.

In accepting outside sponsorship of research projects, a careful balance must be maintained so that both the Government and the university may realize the maximum benefit.



Princeton University Photograph

The supersonic wind tunnel at Princeton University is one of the research facilities aiding the national defense.

The criteria and policies prevailing at Princeton University provide an insight into some of the problems in this field. Foremost, and of underlying significance, is the requirement that such research projects shall be integrated with the other educational functions of the university. Projects which must be set aside in separate cubicles of their own with special procedures and special personnel, projects which are tied only lightly to academic departments, or are primarily of service only to the outside sponsor and contribute little to educational objectives are difficult to justify in an educational institution during normal times. To be acceptable, projects must also be fundamental investigations which will add to scientific knowledge or advance the engineering art.

If significant results are to be obtained, there also must be enthusiastic interest on the part of the research personnel involved. Only those projects in which some member of the faculty has expressed a real interest are undertaken. No Princeton student or member of the faculty is assigned to any project unless he so desires.

Finally, it is recognized that freedom to publish and disseminate the information gained is an important characteristic of a university environment which sponsored research should not jeopardize. Restrictions, by reason of military or commercial security, are an anomaly in an organization primarily devoted to spreading knowledge.

What advantages, then, accrue to the Government and to the armed services particularly? The first and most obvious advantage lies in the new knowledge, data and techniques which may be expected to result. Frequently, the solutions are quickly applicable in the design of equipment for defense.

Perhaps a less obvious advantage, but equally important, is the training provided students and others who work in the forefront of science or engineering under the guidance of experienced scientists and engineers. Every year many of these men go out from the universities to Government laboratories and to employment with organizations working on contracts from the Government. Others contribute more indirectly by employment elsewhere. And practically all of them will be available to the Government in time of emergency, either as technically trained members of the Armed Forces or as highly skilled technical consultants. The total effect is to raise the general level of the Nation's scientific and technological competence.

During 1949-50, approximately thirty-five Government-sponsored research projects were carried on at Princeton. The following examples chosen from particular fields of science are indicative of their scope and variety:

AERONAUTICAL ENGINEERING: Theoretical and experimental investigation of basic problems associated with supersonic flow and with the development of jet propulsion devices of the ducted type.

CIVIL ENGINEERING: Research on stabilization of beach soils and development of techniques for making such soils better weight-bearing surfaces.

ELECTRICAL ENGINEERING: Experimental and theoretical study of the transmission of sound through liquid-filled tubes and of the acoustical parameters of liquids, of importance, for example, in sound-ranging under water; research on thermionic and photoelectric emission from specially prepared materials, of interest in electronics.

MECHANICAL ENGINEERING: Research on methods for the determination of initial stresses in structures and plates by the use of electrical strain gauges, applicable in analyzing the construction of ships and steel structures.

PLASTICS ENGINEERING: Research into the relationships between chemical structure and the physical, electrical, mechanical and chemical properties of high polymers leading toward improved plastics and resins.

BIOLOGY: Research on the luminescence of cypridina, a Japanese crustacean, looking toward the possibility of its use as a luminescent night writing device.

CHEMISTRY: Combustion studies, including the theory of flame propagation and the kinetics and mechanisms of oxidation reactions, of interest in the development of jet propulsion.

GEOLOGY: Study and correlation of geophysical data in critical oceanic areas to analyze aspects of the mechanics of deformation of the earth's crust and to correlate this data with earthquake and volcanic activity.

MATHEMATICS: Research on the solution of non-linear differential equations which arise, for example, in the analysis and design of electronic devices and fire-control directors; studies in small sample theory, statistics and statistical methods, with findings applicable in the testing, evaluating and sampling of data in such fields as ordnance testing, psychological analyses and the evaluation of equipment performance.

PHYSICS: Research on shock waves and transient fluid dynamics, with the objective of developing consistent theories and explanations of such phenomena, applicable in studies on gas flow, explosions and supersonics; investigation of crystals useful in the detection and measurement of ionizing radiation.

PSYCHOLOGY: A study of the injuries to the ear which result from over-stimulation of sound, and extension to the general problem of the nature of sound conduction in the ear; psychological research studies, tests and analyses with the view to developing new measures of learning ability, and to correlate information on laboratory learning, school learning and psychological tests.

What are the problems, both present and future, which are raised by such programs of sponsored research at universities

like Princeton? Of primary concern, as compared with the pre-war assured support from endowment income, is the uncertainty of current provisions for financial support. In most instances, the contracts for such projects do not cover more than a year's work, yet most fundamental research programs must be planned for more than one year to yield the best results. The larger the program in terms of equipment needs, the longer the period needed. The design and construction of the supersonic wind tunnel used in aeronautical engineering research, for example, was begun in late 1946; the dedication has just been held; and several more years will be required before the results are realized. Probably even more important than the long-term equipment aspect is the fact that competent scientific and engineering personnel cannot be attracted and held by commitments for tenure of only a year at a time.

Other problems have to do with projects for fundamental research in areas where no sponsor indicates an interest in the results that might be forthcoming. A sort of negative control is thus exerted, discouraging inquiries into virgin fields which might blossom in the future, just as the initially "impractical" theories of relativity and nuclear physics later blossomed into atomic energy.

A recurring and ever-present difficulty in the negotiation and administration of research contracts is the fact that the relationship is frequently entangled by red tape. Constant care must be exercised by a university administration, and there must be sympathetic understanding by the Government's contractual representatives, to insure that the conditions attached to research contracts with the universities do not in the long run stifle the very characteristics which have made universities such a fruitful source of creative fundamental research.

Of lasting value to the Nation, and of crucial importance in event of another national emergency, is the mutual understanding and cross-education resulting from the direct contacts between the military planners and the universities' scientists and engineers. In attempting to reconcile the requirements for a detached scientific approach with practical military needs, each has learned to recognize and appreciate the other's problems. Increasingly, the current program of Government-sponsored research in the universities is eliciting contributions of real and abiding value—contributions which have implications for the future in safeguarding our national security.

READINESS TRAINING IN THE NAVAL RESERVE

By

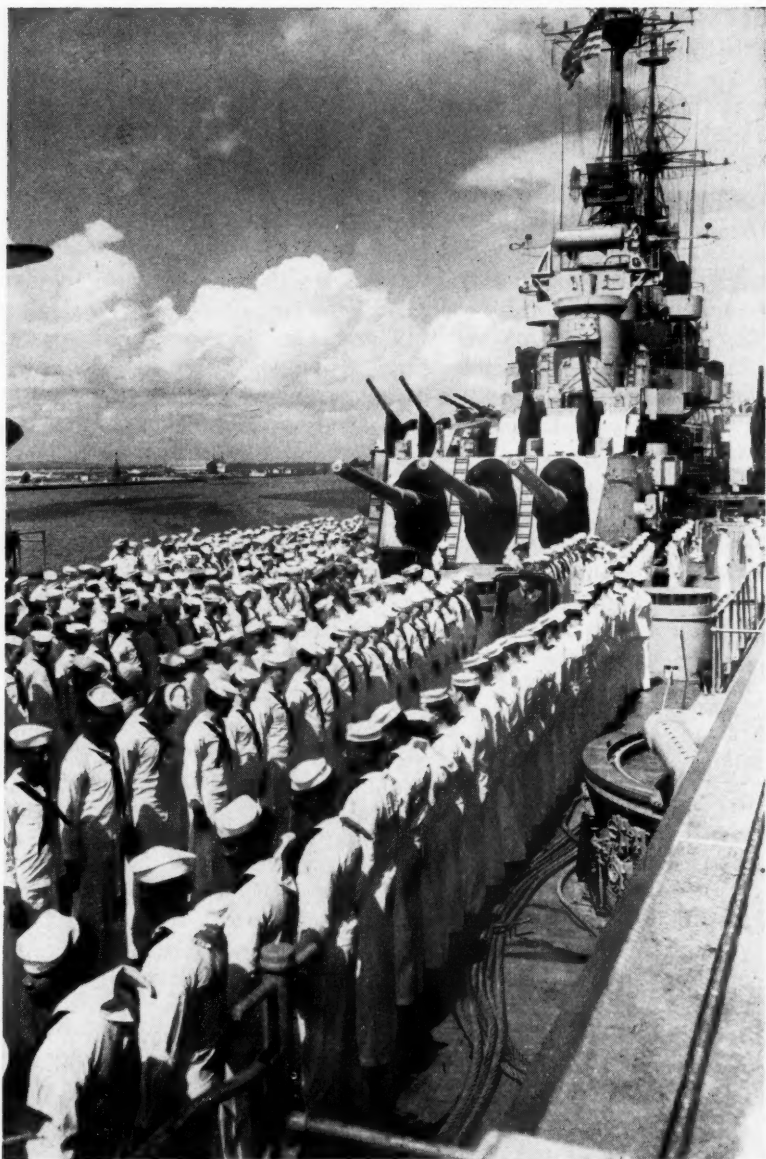
REAR ADMIRAL RALPH S. RIGGS, USN

WHETHER on a training cruise or in a training center classroom, every Naval Reservist is made to feel that he "belongs to the Navy." This policy is the essence of the Navy's Reserve program. Since 8 August 1946, Reserve planning and operations have been completely integrated within the Naval establishment. Each bureau and office of the Department of the Navy budgets for and carries out its Reserve activities coincidentally with those of the Regular Navy, and the Chief of Naval Operations has the same responsibility for both Regular Navy and Reserve personnel. This marks a significant departure from the pre-World War II structure in which administration of the Naval Reserve centered in a single bureau of the Naval Personnel Section.

The organization of the Reserve surface training units also has been transformed. Prior to World War II, Reservists were grouped in so-called ship's company "balanced" divisions of 60 men each, planned to bring a small combat-type ship (usually a destroyer) to war complement strength. Wartime experience, however, demonstrated the efficiency of calling up Reservists individually. Accordingly, today's division is not regarded as a mobilization unit. Essentially it is a training center designed to provide individuals with naval and technical training. As presently organized, a typical surface division consists of 10 officers and 200 enlisted personnel undergoing military and rate instruction. These Organized Naval Reserve units constitute a pool of trained personnel immediately available for individual assignment in an emergency.

In these two important respects—complete integration and the pool concept—the Naval Reserve program differs most radically from that of the Army. Otherwise the two programs are now closely parallel.

REAR ADMIRAL RALPH S. RIGGS, USN, is Assistant Chief of Naval Operations for Naval Reserve.



U. S. Navy Photograph

Naval Reservists from all walks of civilian life prepare for captain's inspection during a Caribbean cruise aboard the *USS Macon*.

READINESS TRAINING IN THE NAVAL RESERVE 57

In the course of World War II, more than 3½ million Reservists served on active duty in the Navy. More than a million personnel still are enrolled in the Naval Reserve. In a realistic appraisal of actual strength, inactive excess members are being eliminated. Expiring enlistments are not renewed unless the Reservist is undergoing some form of training, exceptions being made for those—especially war veterans—who have attained a high degree of skill. Newly enlisted personnel must undergo some form of training to remain in the Naval Reserve.

Out of this total, there remains the impressive figure of 227,446 Reservists (Organized and Volunteer) currently participating in training. To this may be added nearly 19,000 Reservists now on continuous active duty—in all nearly a quarter of a million Navy men and women in a high state of readiness, ready to fill Navy billets promptly upon mobilization.

Administration of the Naval Reserve, except for Air, is decentralized to the Naval Districts. The Reserve program is implemented by each Naval District Commandant exactly as is the Regular Navy program. Air activities are handled on a functional basis, transcending District boundaries, by the Naval Air Reserve Training Command, Naval Air Station, Glenview, Illinois. This installation comes under the Chief of Naval Air Training, Pensacola, Florida.

The Naval Reserve, in addition to the Organized and Volunteer Reserve, includes more than 14,000 Merchant Marine Naval Reservists, the Fleet Reserve, the Honorary Retired List, and the Inactive Status List.

Organized Reserve personnel are required to perform 12 to 48 drills yearly (for which they receive pay) and to engage annually in 14-day active-duty training aboard Naval Reserve training vessels, ships of the fleet, or at Regular Navy schools or shore installations. These Reservists receive credit for nondisability retirement as provided by law. Planned strength of the Organized Reserve in fiscal year 1951 is 204,850, an increase of about 9 per cent over the present on-board figure.

Volunteer Reserve personnel are slated for mobilization assignments. They are not paid and are not required to perform regularly scheduled training. Some, however, drill with Organized Reserve units in an "associated" status, and more than 50,000 are organized into units under some 27 different programs for periodic training similar to that of the Organized Reserve. This duty is recognized for retirement credit.

Volunteers on active duty may be paid for annual training when funds permit. For fiscal year 1951, it is planned to provide paid training duty for at least 15,000 Volunteer Reservists.

The *Merchant Marine Reserve* includes Naval Reserve officers who follow the sea as a profession and who are designated for service aboard naval auxiliaries and merchant craft requisitioned by the Navy.

The *Fleet Reserve* consists of officers and enlisted personnel who have completed 20 years of active duty and who are in retainer pay status for 10 years pending their retirement.

Members of the *Fleet Reserve*, the *Honorary Retired List*, and the *Inactive Status List* do not receive training; nor do they acquire retirement credits or eligibility for promotion. They are continuously classified, however, as to their availability for active service.

For training purposes the Reserve forces are divided into surface, ground, aviation, and submarine components. Woman Reservists are included in overall quotas wherever appropriate. Owing to the complex nature of Naval operations, training in a wide range of specialties is provided. Much of the Reserve program is designed to train and qualify enlisted personnel for ratings in one of the three basic and 44 special training categories, the latter including such fields as antisubmarine warfare, ship activation, ship repair, cargo handling, communications, electronic warfare, industrial mobilization, intelligence, mine warfare, Military Sea Transportation Service, petroleum and research.

In general, Organized Reserve training is divided into three basic categories:

Surface and Submarine training is provided in 765 divisions of 10 to 19 officers and 200 enlisted personnel each. These divisions are organized into training units having the primary mission of training and qualifying enlisted personnel. Units meet each week in two-hour evening sessions.

Air training is offered in 27 air wings established as composite groups at as many air stations, each in a different state. Training is given in four-hour periods on week-ends.

In the *Special Programs* category are companies, units and groups of specialists who are trained for their specialized M-Day billets. These also meet for two-hour evening sessions, generally bimonthly.

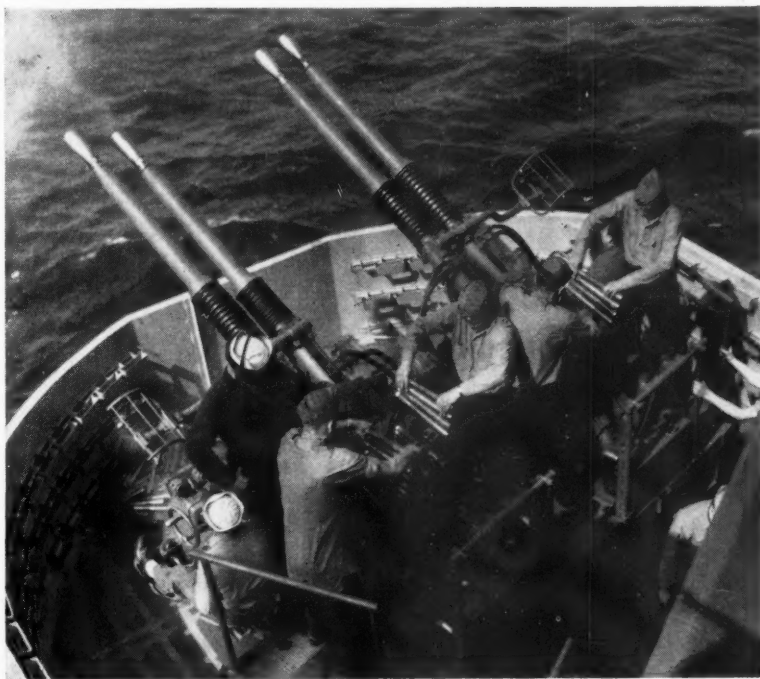
In all, there are 317 Naval Reserve Training Centers in operation. In addition, 505 electronic warfare facilities and

READINESS TRAINING IN THE NAVAL RESERVE 59

stations are actually in operation. A total of 104 vessels ranging in size from destroyers and destroyer escorts to patrol types are assigned for exclusive use in the Naval Reserve program. Included are 26 permanently moored submarines used for training submarine divisions.

The Naval and Marine Corps Air Reserve program employs 2185 aircraft, including fighters, torpedo planes, patrol and transport types. Naval Reserve aviators receive 100 hours of flight and 72 hours of ground instruction annually. At present, there are approximately 6500 such aviators, averaging 27 years in age, most of whom will be available as combat pilots for the next four or five years. The large pool of war-trained pilots and the output of Reserve pilots from the Training Command is expected to maintain the Organized Naval Air Reserve at full strength during the next few years.

In establishing precedence for promotion, Reserve officers, except those on active duty in Regular Navy billets, are placed



U. S. Navy Photograph

Naval Reserve gun crews train together in loading 40-mm guns on a cruise to Nova Scotia.

on a Reserve lineal precedence list, and each is assigned a "running mate" in the Regular establishment. The Reservist's position on the list and his running mate are determined according to date of rank. As officers on the Regular precedence list become eligible for promotion, so do their running mates on the Reserve list. This insures that Reserve officers may be promoted as fast as, but no faster than, their Regular contemporaries, provided they fulfill certain minimum training requirements. Officers of the Volunteer Reserve as well as those in Organized Reserve units are equally eligible.

Maintaining the interest and enthusiasm of the Naval Reservist poses the same difficult and continuing problem as in the other armed services. The Navy endeavors to meet the need realistically. The policy of integration of Regular and Reserve components, it is felt, provides a partial solution, as do the legislative provisions for pay and nondisability retirement.

New enlisted personnel for the Naval Reserve are procured through Regular Navy recruiting facilities. The Naval ROTC program at 52 colleges and universities, with approximately 10,000 students currently enrolled, is a continuing source for well-trained junior officers. The Reserve Candidate plan and the Marine Platoon Leader's Course (consisting of two six-week summer training periods for college students) will, this year, produce an additional 1000 officers.

Throughout every unit, division and branch of the Naval Reserve Corps, one dominating purpose prevails—preparation for immediate service in event of mobilization. In general outline, the M-Day plan (decentralized to Naval Districts) calls first for assignment of Organized Reserve personnel to fortify District staffs and to man processing stations for other Reservists being mobilized. Reservists would "un-zip" and activate ships of the Reserve fleet; and specialists would immediately be assigned to their appropriate tasks. The remainder of both Organized and Volunteer Reserve personnel would augment the complements of active fleet ships, provide manpower for oversea bases, and would be used for additional needs as they develop. The Organized Air Reserve would mobilize under the decentralized authority of the Chief of Naval Air Training. Thus swiftly transforming readiness training into action, the Naval and Marine Corps Reserve, as organized and actually functioning today, will supply in large measure the Navy's immediate personnel needs for any future M-Day.

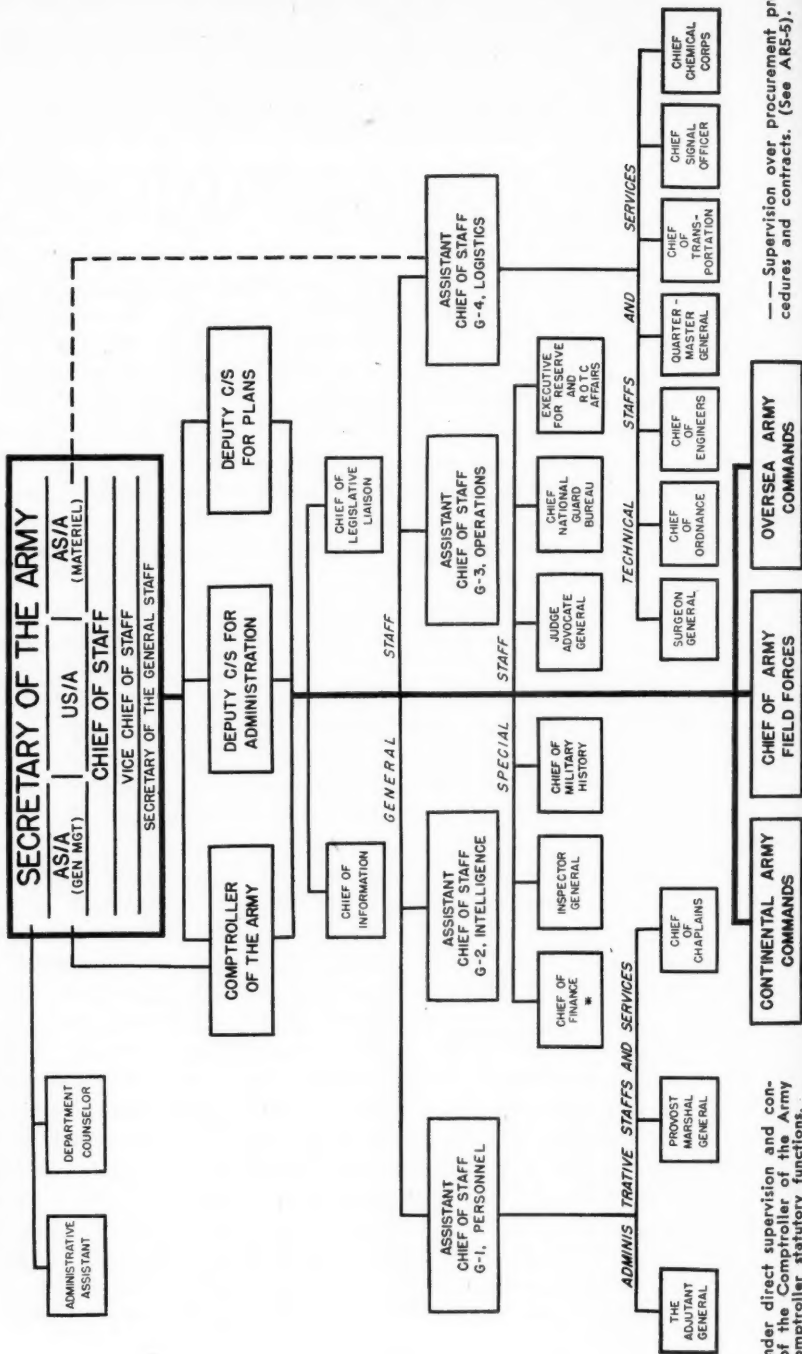
ORGANIZATION OF THE ARMY ESTABLISHMENT

SETTING forth a concise summary of the organization and functions of the Department of the Army, the 26-page D/A Special Regulation 10-5-1, published 11 April 1950, spells out the mission, major functions and organizational arrangements within the Department of the Army. The regulation also outlines the organization of the continental United States, defines the missions and responsibilities of the Chief of Army Field Forces, the Continental Army Commanders, and the Commanding General, Military District of Washington. Also included is an organization chart showing the lines of authority and control.

As set forth in the regulation, the Department of the Army is charged with a specific mission: "To provide support for national and international policy and the security of the United States by planning, directing, and reviewing the military and civil operations of the Army Establishment, to include the organization, training and equipping of land forces of the United States for conduct of prompt and sustained combat operations on land in accordance with plans for national security."

The major military functions of the Department of the Army include: command and management (including mobilization planning, administrative management and budgetary formulation); procurement and distribution of military personnel and civilian employees; provision of a system of adequate intelligence and counterintelligence; training the individual soldier and units in the arts of war; research and development; industrial mobilization; procurement of weapons and equipment; furnishing supplies and equipment to the Army; providing housekeeping and administrative services; and constructing installations and warehouses. In addition to the functions primarily related to creating military forces for prompt and sustained land combat operations, additional functions are required for the performance of other than purely military missions assigned to the Army. Among these civil functions are: constructing, operating and maintaining

ORGANIZATION OF THE DEPARTMENT OF THE ARMY



* Under direct supervision and control of the Comptroller of the Army on comptroller statutory functions.

— Supervision over procurement procedures and contracts. (See ARS-5).

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rivers, harbors, waterways and the Alaska Communication System; repatriating World War II dead; and supervising National Cemeteries.

The Secretary of the Army, a civilian, heads the Army Establishment. "He is responsible for and has authority over all affairs of the Army Establishment, including but not limited to those necessary or appropriate for the training, operations, administration, logistic support and maintenance, research and development, welfare, preparedness, and effectiveness of the Army, and such other activities as may be prescribed by higher authority or authorized by law."

The Secretary of the Army is assisted by the Under Secretary of the Army, an Assistant Secretary of the Army (General Management) and an Assistant Secretary of the Army (Material).

Within the Department of the Army is also a Department Counselor, a special civilian adviser to the Secretary of the Army. The Department Counselor advises "on legal matters not otherwise assigned by law or regulation elsewhere in the Department of the Army and renders interpretative evaluation on these matters and on aspects of legislative, public and military policy not the responsibility of other Department of the Army agencies." He exercises supervision not otherwise assigned by law or regulation over the operations of the Army-Air Force Clemency and Parole Board. He also acts as coordinator between Congressional Committees and the Secretary of the Army on matters in which the Department of the Army has an interest.

The principal military adviser of the Secretary of the Army is the Chief of Staff. He is charged with the "planning, development and execution of the Army program."

Immediate assistants to the Chief of Staff include the Vice Chief of Staff, a Deputy Chief of Staff for Plans and a Deputy Chief of Staff for Administration.

On the same level with the Deputy Chiefs of Staff is the Comptroller of the Army. He is directly responsible to the Assistant Secretary of the Army (General Management) and concurrently responsible to the Chief of Staff. He "integrates the review and analysis of Army programs, and formulates, coordinates, and supervises accounting, fiscal, audit, budgetary, statistical, and management engineering activities of the Army, including the supervision of legislative policies and programs pertaining to appropriation acts."

— Supervision over procurement procedures and contracts. (See AR5-5).

OVERSEA ARMY
COMMANDS

CHIEF OF ARMY
FIELD FORCES

COMMANDS

Control of the Comptroller of the Army
on comptroller statutory functions.

The General Staff, under the direction of the Chief of Staff, is the principal element of the Staff of the Secretary of the Army. "The General Staff renders professional advice and assistance to the Secretary of the Army, the Under Secretary of the Army, and the Assistant Secretaries of the Army, in providing broad basic policies and plans to the Chief of Army Field Forces, the commanding generals of the Continental armies and oversea Army commands, the Commanding General, Military District of Washington, and the heads of the Administrative and Technical Services, to enable them to prepare and execute detailed programs for the development of the Army as a well-balanced and efficient military team."

The subdivisions of the General Staff are the Assistant Chiefs of Staff, G-1, Personnel; G-2, Intelligence; G-3, Operations; and G-4, Logistics.

Particular attention is focused on the role of the Office of the Chief of Army Field Forces as the operating agency of the Department of the Army. It is charged with the "general direction, supervision, coordination, and inspection of all matters pertaining to the training of individuals and units utilized by the Army in the field."

In the execution of his responsibilities in the continental United States, the Chief of Army Field Forces will be guided by the principle of decentralization of operations to Continental Army Commanders; the Commanding General, Military District of Washington; and the heads of the Administrative and Technical services or other agencies of the Department of the Army. Overseas his responsibilities will be limited, in general, to the establishment of training standards and doctrines, the determination of the state of operational readiness of units, and the conduct of essential inspections.

The regulation contains background data on the origin and history of the United States Army and its legal basis in successive Acts of Congress. In addition it outlines the duties and functions of the agencies of the Special Staff and of the Administrative and Technical Staffs and Services. Another basic regulation, SR 10-500-1 (11 April 1950), describes the specific responsibilities of army commanders of Class II installations and activities.

AID
